

**2021-2025
Transportation Improvement Program
for the
Franklin Region**

**FINAL May 26, 2020
Franklin Regional Council of Governments
12 Olive Street, Suite 2, Greenfield, MA 01301
Telephone: 413-774-3167**

**2021-2025
Transportation Improvement Program
for the
Franklin Region**

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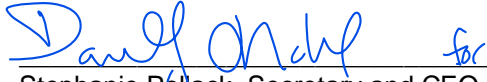
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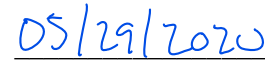
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East County Sub-Regional Appointment

TPO ENDORSEMENT

Franklin County Transportation Planning Organization
2021-2025 Transportation Improvement Program

SIGNATORY CERTIFICATION


Stephanie Pollack, Secretary and CEO
MassDOT


Date

FRANKLIN TPO ENDORSEMENT SHEET

The signatures below signify that all members of the Franklin Region's Transportation Planning Organization, or their designees, have met on September 22, 2020 and discussed the following item for endorsement:

CERTIFICATION OF THE 3C PLANNING PROCESS

Concurrent with the submittal of the proposed TIP to the FHWA and the FTA, the MPO certifies that its conduct of the metropolitan transportation planning process complies with all applicable requirements (which are listed below), and that this process includes activities to support the development and implementation of the Regional Long-Range Transportation Plan and Air Quality Conformity Determination, the Transportation Improvement Program and Air Quality Conformity Determination and the Unified Planning Work Program:

1. 23 U.S.C. 134, 49 U.S.C. 5303, and this subpart;
2. Sections 174 and 176 (c) and (d) of the Clean Air Act, as amended (42 USC 7504, 7506 (c) and (d) and for applicable State Implementation Plan projects;
3. Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d-1) and 49 CFR part 21;
4. 49 U.S.C. 5332, prohibiting discrimination on the basis of race, color, creed, national origin, sex, or age in employment or business opportunity;
5. Section 1101(b) of the Fast Act (Pub. L. 114-94) and 49 CFR part 26 regarding the involvement of disadvantaged business enterprises in USDOT funded projects;
6. 23 CFR part 230, regarding implementation of an equal employment opportunity program on Federal and Federal-aid highway construction contracts;
7. The provisions of US DOT and of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) and 49 CFR parts 27, 37, and 38;
8. The Older Americans Act, as amended (42 U.S.C. 6101), prohibiting discrimination on the basis of age in programs or activities receiving federal financial assistance;
9. Section 324 of title 23 U.S.C. regarding the prohibition of discrimination based on gender;
10. Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. 794) and 49 CFR part 27 regarding discrimination against individuals with disabilities;
11. Anti-lobbying restrictions found in 49 USC Part 20. No appropriated funds may be expended by a recipient to influence or attempt to influence an officer or employee of any agency, or a member of Congress, in connection with the awarding of any federal contract.

September 22, 2020



Stephanie Pollack, Secretary and Chief Executive Officer
Massachusetts Department of Transportation
Chair, Franklin Region TPO

Certification of the Franklin County TPO Transportation Planning Process

310 CMR 60.05: Global Warming Solutions Act Requirements for the Transportation Sector and the Massachusetts Department of Transportation

This will certify that 2021-2025 Transportation Improvement Plan and Air Quality Conformity Determination for the Franklin County Transportation Planning Organization (MPO) is in compliance with all applicable requirements in the State Regulation 310 CMR 60.05: Global Warming Solutions Act Requirements for the Transportation Sector and the Massachusetts Department of Transportation. The regulation requires MPO to:

1. 310 CMR 60.05, 5(a)(1): Evaluate and report the aggregate transportation GHG emissions and impacts of RTPs and TIPs;
2. 310 CMR 60.05, 5(a)(2): In consultation with MassDOT, develop and utilize procedures to prioritize and select projects in RTPs and TIPs based on factors that include aggregate transportation GHG emissions impacts;
3. 310 CMR 60.05, 5(a)(3): Quantify net transportation GHG emissions impacts resulting from the projects in RTPs and TIPs and certify in a statement included with RTPs and TIPs pursuant to 23 CFR Part 450 that the MPO has made efforts to minimize aggregate transportation GHG emissions impacts;
4. 310 CMR 60.05, 5(a)(4): Determine in consultation with the RPA that the appropriate planning assumptions used for transportation GHG emissions modeling are consistent with local land use policies, or that local authorities have made documented and credible commitments to establishing such consistency;
5. 310 CMR 60.05, 8(a)(2)(a): Develop RTPs and TIPs;
6. 310 CMR 60.05, 8(a)(2)(b): Ensure that RPAs are using appropriate planning assumptions;
7. 310 CMR 60.05, 8(a)(2)(c): Perform regional aggregate transportation GHG emissions analysis of RTPs and TIPs;
8. 310 CMR 60.05, 8(a)(2)(d): Calculate aggregate transportation GHG emissions for RTPs and TIPs;
9. 310 CMR 60.05, 8(a)(2)(e): Develop public consultation procedures for aggregate transportation GHG reporting and related GWSA requirements consistent with current and approved regional public participation plans;
10. 310 CMR 60.05, 8(c): Prior to making final endorsements on the RTPs, TIPs, STIPs, and projects included in these plans, MassDOT and the MPOs shall include the aggregate transportation GHG emission impact assessment in RTPs, TIPs, and STIPs and provide an opportunity for public review and comment on the RTPs, TIPs, and STIPs.
11. 310 CMR 60.05, 8(a)(1)(c): After a final GHG assessment has been made by MassDOT and the MPOs, MassDOT and the MPOs shall submit MPO-endorsed RTPs, TIPs or projects within 30 days of endorsement to the Department for review of the GHG assessment.

September 22, 2020



Stephanie Pollack, Secretary and Chief Executive Officer
Massachusetts Department of Transportation
Chair, Franklin County TPO

Notice of Nondiscrimination Rights and Protections to Beneficiaries

Federal “Title VI/Nondiscrimination” Protections

The Franklin Regional Council of Governments (FRCOG) operates its programs, services, and activities in compliance with federal nondiscrimination laws including Title VI of the Civil Rights Act of 1964 (Title VI), the Civil Rights Restoration Act of 1987, and related statutes and regulations. Title VI prohibits discrimination in federally assisted programs and requires that no person in the United States of America shall, on the grounds of race, color, or national origin (including limited English proficiency), be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity receiving federal assistance. Related federal nondiscrimination laws administered by the Federal Highway Administration, the Federal Transit Administration, or both prohibit discrimination on the basis of age, sex, and disability. These protected categories are contemplated within FRCOG’s Title VI Programs consistent with federal interpretation and administration. Additionally, FRCOG provides meaningful access to its programs, services, and activities to individuals with limited English proficiency, in compliance with U.S. Department of Transportation policy and guidance on federal Executive Order 13166.

State Nondiscrimination Protections

FRCOG also complies with the Massachusetts Public Accommodation Law, M.G.L c 272 §§ 92a, 98, 98a, prohibiting making any distinction, discrimination, or restriction in admission to or treatment in a place of public accommodation based on race, color, religious creed, national origin, sex, sexual orientation, disability, or ancestry. Likewise, FRCOG complies with the Governor’s Executive Order 526, section 4 requiring all programs, activities, and services provided, performed, licensed, chartered, funded, regulated, or contracted for by the state shall be conducted without unlawful discrimination based on race, color, age, gender, ethnicity, sexual orientation, gender identity or expression, religion, creed, ancestry, national origin, disability, veteran’s status (including Vietnam-era veterans), or background.

If you need help understanding this document because you do not speak English or have a disability which impacts your ability to read the text, please contact FRCOG’s Title VI Specialist at (413) 774-3167 (voice) (MA Relay System: 800-439-2370), 413-774-3169 (fax), or civilrights@frcog.org (e-mail).

If you believe that you or anyone in a specific class of persons has been subjected to discrimination prohibited by Title VI and other nondiscrimination laws based on race, color, national origin, sex, age, disability, or gender, you or your representative may file a complaint with the FRCOG, which we can help complete. A complaint must be filed no later than 180 days after the date of the alleged discrimination for Title VI complaints and no later than 300 days for state protected category complaints. If you require further information, please contact FRCOG’s Title VI Specialist at (413) 774-3167 (voice) (MA Relay System: 800-439-2370), 413-774-3169 (fax), or civilrights@frcog.org (e-mail).

English: If this information is needed in another language, please contact the FRCOG Title VI Specialist at (413) 774-3167.

Spanish: Si necesita esta información en otro idioma, por favor contacte al especialista de FRCOG del Título VI al (413)774-3167.

Russian: Если Вам необходима данная информация на любом другом языке, пожалуйста, свяжитесь со специалистом по Титулу VI FRCOG по тел: (413) 774-3167.

2021-2025 Franklin Region Transportation Improvement Program

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Introduction

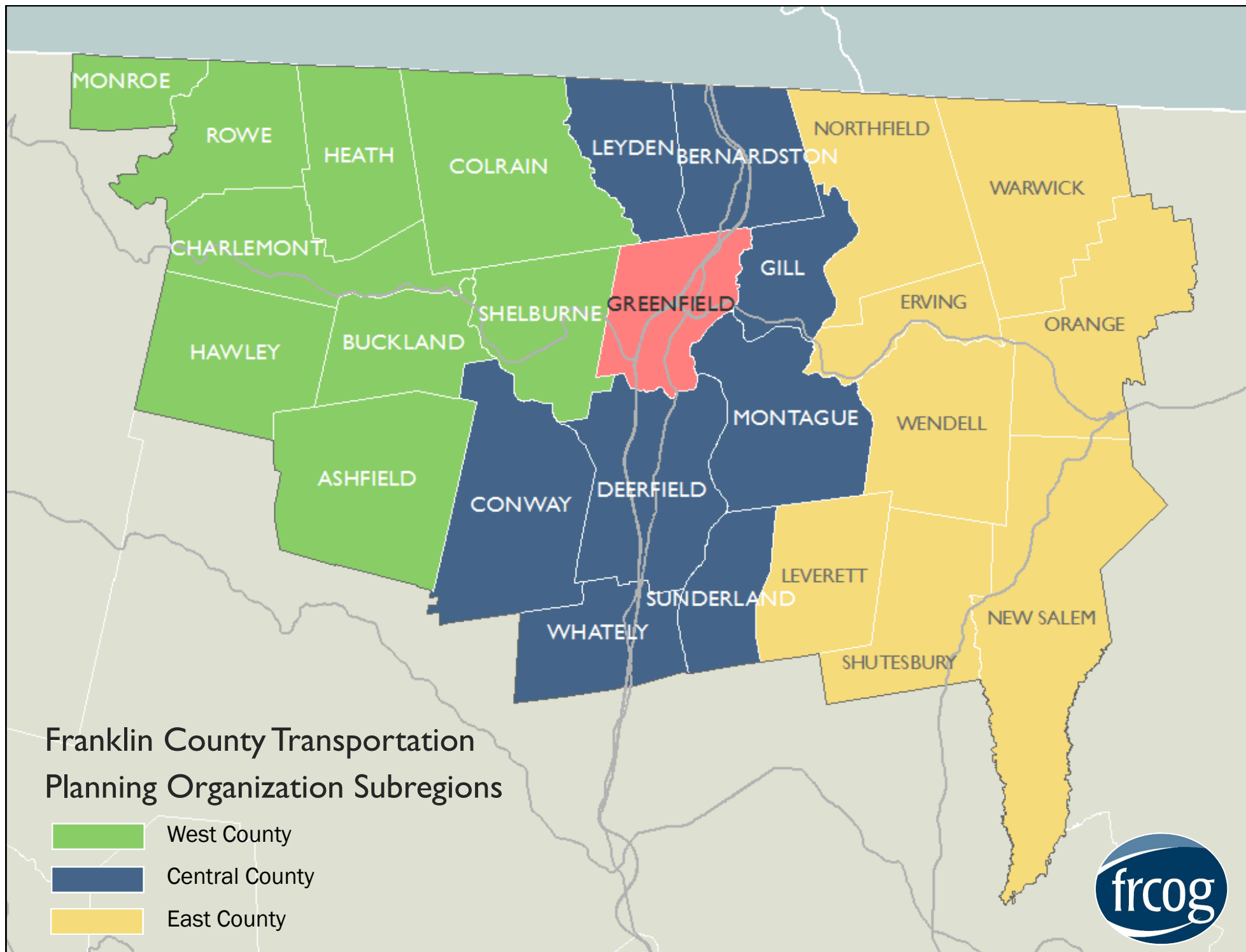
The Transportation Improvement Program (TIP) is a prioritized, financially constrained, multi-year program for the implementation of transportation improvement projects in a specific region. The TIP is important for two primary reasons. First, a transportation project that is to receive federal funding must be listed on the TIP. Second, the TIP is a requirement of the urban transportation planning process as described in the Federal Urban Transportation Planning Rules and Regulations, Part 450, Sub-Part C (23 CFR 450), which requires that the TIP receive the endorsement of the Metropolitan Planning Organization (MPO) for the area. In the case of the Franklin Region, the Franklin County Transportation Planning Organization (FCTPO) serves as the region's MPO.

Franklin County Transportation Planning Organization

Established by Memorandum of Understanding (MOU) between the Massachusetts Department of Transportation (MassDOT), the Franklin Regional Council of Governments (FRCOG), the Franklin Regional Transit Authority (FRTA), and the Franklin County Selectmen's Association, the FCTPO performs all functions as required in federal or state laws and regulations including jointly developing, reviewing and adopting the region's annual transportation Unified Planning Work Program, the Regional Transportation Plan, and the TIP. Membership in the FCTPO consists of nine area officials, as follows:

- Secretary of MassDOT (Chair of the FCTPO)
- Administrator of MassDOT Highway Division
- Franklin Regional Council of Governments Executive Committee, Chair
- Franklin Regional Transit Authority, Chair
- Franklin Regional Council of Governments Regionally Elected Official
- Mayor of Greenfield
- Three Franklin County Sub-Regional Appointments

The three sub-regional appointments are elected for three-year terms by the Franklin County Selectmen's Association, one from each of the three geographic areas in Franklin County (Figure 1). In April 2020, the FCTPO undertook a review of their MOU and proposed several revisions, including a new process for selecting the sub-regional appointments. Under the proposed MOU, sub-regional appointments to the FCTPO would be elected by the FRCOG Council. In addition, the FCTPO would elect a Vice Chair from within its membership who would oversee FCTPO meetings in the absence of the Chair. A Draft MOU with these proposed revisions was released for public review and comment on April 28, 2020, and was endorsed by the FCTPO on May 26, 2020.



Transportation Improvement Program Development Process

The FCTPO's Federal Fiscal Year (FFY) 2021-2025 Transportation Improvement Program for the Franklin Region contains information as follows: 1) Each fiscal year of the TIP contains 4 sections for highway projects; Section 1 contains regionally prioritized federal-aid projects and earmark or discretionary grant funded projects, Section 2 contains state prioritized projects, Section 3 contains any planning, adjustments, or pass-through funds, and Section 4 contains any non-federal-aid funded projects. Transit projects are listed separately by fiscal year. These sections are financially constrained, and projects have been programmed according to the funding expectations conveyed by the Massachusetts Department of Transportation (MassDOT). 2) Appendix A lists projects that are in various stages of development and/or cannot be accommodated within the FFY 2021-2025 listings because they are beyond the region's target. This TIP document also contains information on the greenhouse gas impacts of currently listed and recently completed highway and transit projects.

The TIP is an expression of intent to implement the listed projects. Funding for projects contained in the first two years of the TIP is available or committed. Later years of the TIP contain projects that are reasonably expected to be ready in terms of design and expected to have funding available. On behalf of the FCTPO, the Franklin Regional Council of Governments (FRCOG) planning staff works closely with MassDOT Highway Districts 1 and 2, the Franklin Regional Transit Authority (FRTA) and the MassDOT Office of Transportation Planning (OTP) to ensure that these prioritized projects are advertised and funded, and that the TIP is a realistic listing of projects for the region.

Projects on the TIP were solicited from Franklin County municipal officials, MassDOT Highway Districts 1 and 2, MassDOT Office of Transportation Planning, the Franklin Regional Transit Authority, the FRCOG, and the FCTPO members. They are also identified through other sources including the Regional Transportation Plan, previous TIPs, Safety and Corridor

Planning studies, Congestion and Safety management activities, and previous Unified Planning Work Programs.

Federal Authorization

The TIP has been developed in accordance with Fixing America's Surface Transportation (FAST) Act, the legislation authorizing federal funding of surface transportation programs for federal fiscal years 2016 through 2020. The FAST Act was enacted on December 4, 2015, and replaces the Moving Ahead for Progress in the 21st Century (MAP-21) act of 2012. Under the FAST Act, all MPOs are required to incorporate the following ten planning factors:

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity and efficiency.
2. Increase the safety of the transportation system for motorized and non-motorized users.
3. Increase the security of the transportation system for motorized and non-motorized users.
4. Increase the accessibility and mobility of people and for freight.
5. Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns.
6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.
7. Promote efficient system management and operation.
8. Emphasize the preservation of the existing transportation system.

9. Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation.

10. Enhance travel and tourism.

The FAST Act specifically addresses all modes of transportation and enhances many of the existing provisions and programs defined in previous transportation legislation. The following national goal areas are a continuing priority under the FAST Act:

- Safety – To achieve a significant reduction in traffic fatalities and serious injuries on all public roads;
- Infrastructure condition – To maintain the highway infrastructure asset system in a state of good repair;
- Congestion reduction – To achieve a significant reduction in congestion on the NHS;
- System reliability – To improve the efficiency of the surface transportation system;
- Freight movement and economic vitality – To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development;
- Environmental sustainability – To enhance the performance of the transportation system while protecting and enhancing the natural environment; and
- Reduced project delivery delays – To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.

Regional Transportation Plan

Projects contained in this TIP are consistent with goals and objectives of the 2020 Franklin County Regional Transportation Plan (RTP), which are to maintain infrastructure to facilitate the mobility of people and goods traveling to, from and through Franklin County; improve the safety and security of the transportation network; increase transportation options and reduce vehicle emissions; promote economic development of the region while maintaining its rural character; and promote sustainable transportation, reduce greenhouse gas emissions, and prepare for climate change.

The RTP is a 25-year long range plan that details existing conditions, identifies current deficiencies and projects future transportation needs for the Franklin County region, and establishes performance measures to assess progress in meeting the region's goals. Consistency between the RTP and the TIP is achieved through the application of Transportation Evaluation Criteria in the selection and prioritization of potential TIP projects, as described in the next section. All of the TIP projects are consistent with the goals of the current Franklin County region's RTP.

Unified Planning Work Program

The Unified Planning Work Program (UPWP) describes the scope and estimates the cost of work tasks to be conducted by the transportation planning staff of FRCOG on behalf of the FCTPO for a single fiscal year contract year. The UPWP outlines the region's long and short-range transportation planning objectives and describes how these objectives will be met. The work of developing the TIP is described and budgeted for within the UPWP each year.

Project Prioritization and Transportation Evaluation Criteria (TEC)

Projects included on the TIP have been ranked using the Transportation Evaluation Criteria (TEC) developed by MassDOT. These criteria take into consideration condition of the facility, mobility, safety, cost effectiveness, community effect and support, land use and economic development, and environmental factors. All of these criteria except "cost effectiveness"

(which is scored neutral as zero) can receive a score of -3 to +3. Staff from the Franklin Regional Council of Governments, MassDOT Office of Transportation Planning, and MassDOT Highway Districts 1 and 2 evaluate proposed projects annually and determine a score. While these scores identify general priorities, projects are not ranked solely based on their score. Other factors used to prioritize projects include available funding, project readiness, greenhouse gas emission impacts, and importance to the overall regional transportation network. Local input is also provided by the Franklin Regional Planning Board. Final decisions are made by the FCTPO, comprised of members representing a broad group of interests. Projects listed by TEC score and an example TEC scoring sheet are provided in Appendix B.

Performance-Based Planning

The federal regulations that govern the transportation planning process and TIP development require a performance-based approach to transportation decision making, including the establishment of performance targets. Informed by the 10 planning factors laid out in the FAST Act, The FCTPO has established performance measures in the current RTP. These measures are evaluated in the TIP development process through the Transportation Evaluation Criteria scoring of each potential TIP project, as described in the previous section. The FCTPO is in coordination with MassDOT to develop procedures to share transportation performance data and track progress toward attainment of performance goals.

The FHWA and FTA implemented transportation asset management (TAM) rules in 2017 that impact how the condition of our transportation assets are measured and reported. MassDOT has developed performance measures and performance targets to address safety, transit assets, bridge and pavement condition, CMAQ and freight performance. The FRTA adopted the Transit Asset Management Plan targets developed by MassDOT in October 2018 and the statewide transit asset targets are shown in Table 1. The FCTPO has adopted the safety targets (PM1), pavement and bridge condition (PM2) targets, and CMAQ and Freight (PM3) targets set by MassDOT as discussed in the following paragraphs.

Table 1. Transit Asset Management Targets

Asset Category - Performance Measure	FTA Asset Class	2019 Target	2020 Target
Revenue Vehicles			
Age - % of revenue vehicles within a particular asset class that have met or exceeded their Useful Life Benchmark (ULB)	BU - Bus	10%	10%
	CU - Cutaway	35%	30%
	MB - Minibus	10%	10%
	VN - Van	10%	10%
Equipment			
Age - % of vehicles that have met or exceed their Useful Life Benchmark (ULB)	Non-Revenue / Service Automobiles	100%	67%
	Trucks & Other Rubber Tire Vehicles	50%	25%
Facilities			
Condition - % of facilities with a condition rating below 3.0 on the FTA Term Scale	Administrative / Passenger Facility	0%	0%
	Maintenance Facility	100%	100%

Safety Performance Measures (PM1)

The FCTPO adopted the statewide safety performance measure targets set by MassDOT for Calendar Year (CY) 2020. In setting these targets, MassDOT has followed FHWA guidelines by using statewide crash data and Highway Performance Monitoring System (HPMS) data for vehicle miles traveled (VMT) in order to calculate 5 year, rolling average trendlines for all FHWA defined safety measures. CY 2020 targets for each of the five safety measures—total number of fatalities, rate of fatalities per 100 million vehicle miles traveled, total number of serious injuries, and rate of serious injuries per 100 million VMT, and total number of combined serious injuries and fatalities for non-motorized modes —were established by extending their respective trendlines into the 2016-2020 time period. The fifth safety measure, total number of combined serious injuries and fatalities for non-motorized modes, has been set to reflect continued projected reductions in non-motorized fatalities and

injuries due to a number of implementation strategies contained within the Statewide Bike Plan, Statewide Pedestrian Plan, and Strategic Highway Safety Plan. All five safety measures reflect a decrease in statewide trends.

In all safety categories, MassDOT has established a long-term target of “Toward Zero Deaths” through [MassDOT's Performance Measures Tracker](#) and will be establishing safety targets for the MPO to consider for adoption each calendar year. While the FCTPO is not required by FHWA to report on annual safety performance targets, FHWA guidelines require MPOs and TPOs to adopt MassDOT's annual targets or perennially establish their own.

The safety measures MassDOT has established for CY 2020, and that the FCTPO has adopted, are described in the following list. A comparison of Franklin County vs. statewide performance for each measure is shown in Table 2.

- 1) **Fatalities:** Over the last seven years, the number of fatalities in Massachusetts has been relatively stable, fluctuating less than 1 percent with the exception of 2016, when the 5 year average reached 364. That said, the most recent data shows that the five-year average for fatalities in 2018, 358, is the second lowest it has been since the 2008 – 2012 five-year average. The calendar year (CY) 2020 target of 347 was set to reflect an anticipated decrease in fatalities due to data enhancements, safety projects, and strategies and legislative proposals that were part of the 2018 Strategic Highway Safety Plan (SHSP).
- 2) **Rate of Fatalities per 100 million VMT:** Partly due to a 0.3% annual increase in VMT and an overarching downward trend in the fatality *rate*, it is anticipated that the fatality rate from 2013–2017 of 0.59 fatalities per 100 million vehicle miles traveled will drop to 0.56 fatalities per 100 million vehicle miles traveled between 2016–2020. *(Note: Statewide VMTs used to calculate the Projected CY20 Target Fatality Rate were adjusted after state adoption of the 0.56 per 100 million VMT target.)*
- 3) **Serious Injuries:** Although this measure is particularly prone to contextual factors, it is anticipated that there will be an overall decrease in the number of incapacitating injuries due to a continual downward trend line as well as the implementation of

countermeasures that are being developed as part of the 2018 Strategic Highway Safety Plan.

- 4) **Rate of Serious Injuries per 100 million VMT:** Similar to the fatality rate, it is anticipated that the increase in VMT and a downward trend line will result in a drop in the rate of incapacitating injuries from 4.84 per 100 million VMT between 2013–2017 to 4.30 between 2016–2020. *(Note: Statewide VMTs used to calculate the Projected CY20 Target Incapacitating Injury Rate were adjusted after state adoption of the 4.30 per 100 million VMT target.)*

- 5) **Total Number of Combined Serious Injuries and Fatalities for Non-Motorized**

Modes: The most recent data for non-motorized fatalities and incapacitating injuries indicates that the previously increasing trend decreased in 2017. The CY 2020 target of 505 has been set to reflect continued projected reductions in non-motorized fatalities and injuries due to a number of implementation strategies contained within the Statewide Bike Plan, Statewide Pedestrian Plan, and Strategic Highway Safety Plan.

Table 2. Safety Performance Measures, Statewide & Franklin County

Safety Performance Measure	CY2020 Target	Statewide Average, 2014-2018	Franklin County Average, 2014-2018
Number of Fatalities	347	348	7.6
Fatalities per 100 million VMT	0.56	0.59	0.82
Number of Serious Injuries	2,689	2,573	33
Serious Injuries per 100 million VMT	4.30	4.87	2.05
Number of Serious Injuries + Fatalities, Non-motorized Modes	505	519	5.8

Bridge & Pavement Performance Measures (PM2)

The FCTPO has chosen to adopt the 2-year (2020) and 4-year (2022) statewide bridge and pavement performance measure targets set by MassDOT. MassDOT was required to adopt a statewide target by May 20th, 2018, with MPOs and TPOs either adopting the statewide target or establishing their own by November 2018. These targets are slated to be updated in October 2020. Current conditions and targets are shown in Table 3.

In setting these targets, MassDOT has followed FHWA guidelines by measuring bridges and pavement condition using the 9-point National Bridge Inventory Standards (NBIS); the International Roughness Index (IRI); the presence of pavement rutting; and the presence of pavement cracking. 2-year and 4-year targets were set for six individual performance measures: percent of bridges in good condition; percent of bridges in poor condition; percent of Interstate pavement in good condition; percent of Interstate pavement in poor condition; percent of non-Interstate pavement in good condition; and percent of non-Interstate pavement in poor condition. All of the above performance measures are tracked in greater detail in MassDOT's Transportation Asset Management Plan (TAMP), which was finalized in July 2019.

Targets for bridge-related performance measures were determined by identifying which bridge projects are programmed and projecting at what rate bridge conditions deteriorate. The bridge-related performance measures measure the percentage of deck area, rather than the total number of bridges.

Performance targets for pavement-related performance measures were based on a single year of data collection, and thus were set to remain steady under the guidance of FHWA. These measures are to be revisited at the 2-year mark (2020), once three years of data are available, for more informed target setting.

MassDOT continues to measure pavement quality and to set statewide short-term and long-term targets in the MassDOT Performance Management Tracker using the Pavement

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Serviceability Index (PSI), which differs from IRI. These measures and targets are used in conjunction with federal measures to inform program sizing and project selection.

Table 3. Bridge and Pavement Performance Measures

Performance Measure	Current (2017)	2-year target (2020)	4-year target (2022)
Bridges in good condition	15.22%	15%	16%
Bridges in poor condition	12.37%	13%	12%
Interstate Pavement in good condition	74.2%	70%	70%
Interstate Pavement in poor condition	0.1%	4%	4%
Non-Interstate Pavement in good condition	32.9%	30%	30%
Non-Interstate Pavement in poor condition	31.4%	30%	30%

Reliability, Congestion, & Emissions Performance Measures (PM3)

The FCTPO has chosen to adopt the 2-year (2020) and 4-year (2022) statewide reliability, congestion, and emissions performance measure targets set by MassDOT. MassDOT was required to adopt a statewide target by May 20th, 2018, with MPOs and TPOs either

adopting the statewide target or establishing their own by November 2018. These targets are slated to be updated in October 2020. Current conditions and targets are shown in Table 4.

MassDOT followed FHWA regulation in measuring Level of Travel Time Reliability (LOTTR) on both the Interstate and non-Interstate NHS as well as Truck Travel Time Reliability (TTTR) on the Interstate system using the National Performance Management Research Dataset (NPMRDS) provided by FHWA. These performance measures aim to identify the predictability of travel times on the roadway network by comparing the average travel time along a given segment against longer travel times. For LOTTR, the performance of all segments of the Interstate and of the non-Interstate NHS are defined as either reliable or unreliable based on a comparison between the 50th percentile travel time and the 80th percentile travel time, and the proportion of reliable segments is reported. For TTTR, the ratio between the 50th percentile travel time and the 90th percentile travel time for trucks only along the Interstate system is reported as a statewide measure. As this data set has but one year of consistent data, FHWA guidance has been to set conservative targets and to adjust future targets once more data becomes available. To that end, MassDOT's reliability performance targets are set to remain the same.

Emissions reduction targets are measured as the sum total of all emissions reductions anticipated through CMAQ-funded projects in non-attainment or air quality maintenance areas (currently the cities of Lowell, Springfield, Waltham, and Worcester, and the town of Oak Bluffs) identified in the Statewide Transportation Improvement Program (STIP). This anticipated emissions reduction is calculated using the existing CMAQ processes.

Table 4. Reliability, Congestion, & Emissions Performance Measures

Measure	Current (2017)	2-year (2020)	4-year (2022)
Non-Interstate LOTTR	80%	80%	80%
Interstate LOTTR	68%	68%	68%
TTTR	1.85	1.85	1.85
PHED (Boston UZA)	18.31	18.31	18.31
% non-SOV (Boston UZA)	33.6% (2016)	34.82%	35.46%
Emissions Reductions	Baseline (FFY 14–17)	1,622 CO 497.9 Ozone	TBD CO (Springfield) 1.1 Ozone

Public Participation

The TIP was developed in accordance with the Franklin County Public Participation Plan (PPP), which was updated and endorsed by the FCTPO on March 28, 2017. The PPP identifies a broad spectrum of constituent groups that are routinely included in discussions and decisions for expending transportation funds in Franklin County. To ensure full and equal opportunities for participation, the FCTPO follows the Title VI guidelines for accessibility and language translation. Information is included in all notices of public comment that accommodations can be made for a disability and that translations services are available. Along with the notices, the contact information is provided for the Title VI Specialist to request these services.

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The FCTPO has provided citizens, affected public agencies, representatives of transportation agencies, private providers of transportation and other interested parties with a reasonable opportunity to comment on the FFY 2021-2025 TIP in accordance with the provisions of the Moving Ahead for Progress in the 21st Century (MAP-21) legislation and the FAST Act.

Specifically, the following actions were taken. In 2020, the Towns of Franklin County and the Transit providers were interviewed about the status of their previously listed TIP projects and proposed new projects. The FCTPO members, the Franklin Regional Planning Board, and Council of Governments Executive Committee members received drafts of the FFY 2021-2025 TIP for review. Drafts were also sent to MassDOT Highway Districts 1 and 2, MassDOT Office of Transportation Planning, MassDOT Transit, FHWA, FTA, and the FRTA for review and comment. Drafts were also made available to the general public and the press. A 21-day public review and comment period was observed from May 1 through May 21, 2020. A summary of comments received during the public comment period is provided at the end of this document.

Amendment/Adjustment Procedures

During the course of the fiscal year, changes to the TIP are sometimes required. Changes will either be defined as Amendments or Adjustments.

Amendments to the TIP are significant changes that require a 21-day public review and comment period, and full signatory approval by the FCTPO.

Adjustments to the TIP are insignificant changes that will not negatively affect a project's funding or program status, and do not require a 21-day public review and comment period. The FRCOG, as staff to the FCTPO, will make the determination of if a proposed change is an adjustment, and will bring the matter to the FCTPO for a review and a vote. If approved, an adjustment is effective immediately.

These Amendment and Adjustment definitions are substantially the same as those used by MassDOT to address project-based revisions to the State Transportation Improvement

2021-2025 Franklin Region Transportation Improvement Program

Program (STIP). The MassDOT STIP revision definitions and procedures are provided in Appendix C.

The definitions of an Amendment and an Adjustment are as follows:

Amendment Definition

The following actions are considered significant changes and require Amendments to the TIP:

- A request to add or delete a project to/from one of the Federal Aid funding categories within the TIP.
- A request to move any project from its current fiscal year to another fiscal year.
- A project cost change of or greater than 10%.

Adjustment Definition

The following actions are considered insignificant changes and require Adjustments to the TIP:

- A project cost change less than 10%.
- Administrative corrections such as an incorrect project number or project description.
- Changes to transit project costs in non-federal funding categories.
- Other minor project revisions as determined by FRCOG staff.

Transportation Funding Programs

Transportation projects listed within the TIP are divided into federal and non-federal funding programs. A description of each of the funding programs available to the Franklin Region follows.

Federal Aid Programs

The National Highway Performance Program (NHPP): The NHPP provides support for the condition and performance of the National Highway System (NHS), for the construction of

new facilities on the NHS, and for investments of Federal-aid funds in highway construction that support progress toward the achievement of performance targets established in a State's asset management plan for the NHS. The NHS is comprised of 220,000 miles of the Nation's urban and rural roads and includes the Interstate system, all principal arterials (defined as those roads that receive substantial statewide or interstate travel), and connectors to significant military, strategic defense, and intermodal transportation facilities. NHPP projects must be on an eligible facility and support progress toward achievement of national performance goals for improving infrastructure condition, safety, mobility, or freight movement on the NHS, and be consistent with Metropolitan and Statewide planning requirements.

National Highway Freight Program (NHFP): The FAST Act established the NHFP to improve the efficient movement of freight on the National Highway Freight Network (NHFN) and support the following goals:

- investing in improvements that strengthen economic competitiveness, reduce congestion, reduce the cost of freight transportation, improve reliability and increase productivity;
- improving the safety, security, efficiency, and resiliency of freight transportation in rural and urban areas;
- improving the state of good repair of the NHFN;
- using innovation and advanced technology to improve NHFN safety, efficiency, and reliability;
- improving the efficiency of the NHFN;
- improving State flexibility to support multi-state corridor planning and address highway freight connectivity; and
- reducing the environmental impacts of freight movement on the NHFN.

Generally, NHFP funds must contribute to the efficient movement of freight on the NHFN and be identified in the State's freight plan.

The Surface Transportation Block Grant Program (STBG): The Surface Transportation Block Grant Program is the most flexible funding source under the FAST Act. The STBG was formerly known as the Surface Transportation Program (STP) and is still referred to as STP in the TIP Highway Project List. Funds from the STBG program are for use on any roads, other than local roads and rural minor collectors, for capital costs of transit projects, and for bridge projects. Additionally, STBG funds can be used for projects like: carpooling projects, Park and Ride lots, highway and transit safety improvements, and bicycle and pedestrian facilities. STBG funds cannot be used for operating costs or maintenance costs of transportation facilities.

Congestion Mitigation and Air Quality Improvement Program (CMAQ): CMAQ money has been allocated for projects that reduce ozone, carbon monoxide and particulate-matter emissions. CMAQ money is available to those areas that have been defined as non-attainment areas¹ for ozone according to the Clean Air Act. The state of Massachusetts has been declared a nonattainment area, making the Franklin Region eligible for these funds.

Highway Safety Improvement Program (HSIP): HSIP money is set aside specifically for projects that improve highway safety, with a focus on reducing fatal and injury crashes. The intent of the HSIP is to focus on the areas that will yield the highest safety benefit based upon data compiled and analyzed in the same manner to ensure that the highest incident locations are being addressed in a timely manner. The HSIP is guided by a data-driven state Strategic Highway Safety Plan that defines state safety goals, ranks dangerous locations, and includes a list of projects.

¹A nonattainment area is a geographic region designated by the U.S. Environmental Protection Agency as not meeting the National Ambient Air Quality Standards (NAAQS). All of Massachusetts has been designated serious nonattainment for ozone pollution.

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On-System Bridge Replacement and Rehabilitation Program (STP-BR-On): This program funds the replacement or rehabilitation of bridges that are on the federal aid system (bridges on all roads except those classified as rural local or rural minor collector).

Off-System Bridge Replacement and Rehabilitation Program (STP-BR-Off): This program funds the replacement or rehabilitation of bridges that are off of the federal aid system (bridges on those roads classified as local or rural minor collector).

Section 5311 – Rural Area Formula Program: This program funds public transportation in rural areas for operating and capital grants for intercity facilities, services and equipment.

Non Federal Aid Programs

This category contains all projects not receiving federal funds. The listing of Non Federal Aid projects is not required as part of the federal TIP process. However, many projects receiving Non-Federal Aid are vitally important to the Franklin Region and Commonwealth transportation network and, thus, are included within this document. Additionally, the Memorandum of Understanding for a Balanced Statewide Road and Bridge Program executed in 2000 between the Commonwealth’s Metropolitan Planning Organizations and MassDOT (formerly MassHighway) recognizes both the importance of non-federal aid funding for roads and bridges in the Commonwealth, and the appropriateness of listing non-federal aid projects in the TIP.

Regionally Significant Projects

“Regionally Significant Projects” generally refers to transportation projects with potential air quality impacts that should be modeled for Air Quality Conformity. Typically, interchanges between major highways, as well as roadways that bring large volumes of traffic in and out of a region, are those that are targeted with this label. The Franklin Region does not have any Regionally Significant Projects in this TIP.

Regional Transit Authority Capital Assistance (RTACAP)

RTACAP are state funds primarily used for RTA capital projects, including matching funds for federally funded projects.

FFY 2021-2025 Highway and Transit Project Listing

Table 5. TIP Project Listing

The complete listing of all highway and transit projects programmed in the 2021-2025 Franklin Region TIP is presented in the following tables. A brief description of each project is provided in Appendix D.

2021 Franklin Region Transportation Improvement Program

STIP Program	MassDOT Project ID	MassDOT Project Description	MassDOT District	Funding Source	Total Programmed Funds	Federal Funds	Non-Federal Funds	Additional Information
Section 1A / Regionally Prioritized Projects								
Roadway Reconstruction	606463	BUCKLAND- RECONSTRUCTION & MINOR WIDENING ON CONWAY STREET, SUMMER STREET, SOUTH STREET & CONWAY ROAD	1	STBG	\$2,887,813	\$2,310,250	\$577,563	Construction. Total project cost \$7,868,506. A/C over 2 years, 2021-2022. TEC score 9.1.
Roadway Reconstruction	608724	GREENFIELD- RECONSTRUCTION OF WISDOM WAY, FROM 480 FEET EAST OF PETTY PLAIN ROAD TO MILL STREET (0.43 MILES)	2	STBG	\$3,292,100	\$2,633,680	\$658,420	Construction. Total project cost \$3,292,100. TEC score 7.8.
Total Regional Federal Aid Target Funds Programmed					\$6,179,913	\$4,943,930	\$1,235,983	
Total Regional Federal Aid Target					\$6,179,913			
Target Funds Available					\$0			
Section 1B / Earmark or Discretionary Grant Funded Projects								
		No projects programmed						
Section 2A / State Prioritized Reliability Projects								
		No projects programmed						
Section 2B / State Prioritized Modernization Projects								
		No projects programmed						
Section 2C / State Prioritized Expansion Projects								
Bicycle and Pedestrian	607588	NORTHFIELD- BIKE/PED BRIDGE CONSTRUCTION TO REPLACE N-22-002, SCHELL BRIDGE OVER THE CONNECTICUT RIVER	2	CMAQ	\$22,007,915	\$17,606,332	\$4,401,583	Construction. Total project cost \$22,007,915.
Section 2C Subtotal					\$22,007,915	\$17,606,332	\$4,401,583	
Section 3 / Planning / Adjustments / Pass-throughs								
		No projects programmed						
Section 4 / Non-Federally Aided Projects								
		No projects programmed						
Total Spending Fiscal Year 2021					\$28,187,828	\$22,550,262	\$5,637,566	

2022 Franklin Region Transportation Improvement Program

STIP Program	MassDOT Project ID	MassDOT Project Description	MassDOT District	Funding Source	Total Programmed Funds	Federal Funds	Non-Federal Funds	Additional Information
Section 1A / Regionally Prioritized Projects								
Roadway Reconstruction	606463	BUCKLAND- RECONSTRUCTION & MINOR WIDENING ON CONWAY STREET, SUMMER STREET, SOUTH STREET & CONWAY ROAD	1	STBG	\$4,980,693	\$3,984,554	\$996,139	Construction. Total project cost \$7,868,506. A/C over 2 years, 2021-2022. TEC score 9.1.
Total Regional Federal Aid Target Funds Programmed					\$4,980,693	\$3,984,554	\$996,139	
Total Regional Federal Aid Target					\$6,305,751			
Target Funds Available					\$1,325,058			
Section 1B / Earmark or Discretionary Grant Funded Projects								
		No projects programmed						
Section 2A / State Prioritized Reliability Projects								
Bridge Off-system	608858	CHARLEMONT- BRIDGE REPLACEMENT, C-05-042, EAST OXBOW ROAD OVER OXBOW BROOK	1	STBG-BR-Off	\$2,196,912	\$1,757,530	\$439,382	Construction. Total project cost \$2,196,912.
Section 2A Subtotal					\$2,196,912	\$1,757,530	\$439,382	
Section 2B / State Prioritized Modernization Projects								
		No projects programmed						
Section 2C / State Prioritized Expansion Projects								
		No projects programmed						
Section 3 / Planning / Adjustments / Pass-throughs								
		No projects programmed						
Section 4 / Non-Federally Aided Projects								
		No projects programmed						
Total Spending Fiscal Year 2022					\$7,177,605	\$5,742,084	\$1,435,521	

2023 Franklin Region Transportation Improvement Program

STIP Program	MassDOT Project ID	MassDOT Project Description	MassDOT District	Funding Source	Total Programmed Funds	Federal Funds	Non-Federal Funds	Additional Information
Section 1A / Regionally Prioritized Projects								
Intersection Improvements	608414	GREENFIELD- INTERSECTION IMPROVEMENTS AT TWO LOCATIONS, ROUTE 2 AND COLRAIN ROAD & ROUTE 2 AND BIG Y ENTRANCE	2	HSIP	\$253,975	\$228,578	\$25,398	Construction. Total project cost of \$2,081,823 inflated 4% per year. Programmed with Regional STBG + HSIP funds. TEC score 9.2.
Intersection Improvements	608414	GREENFIELD- INTERSECTION IMPROVEMENTS AT TWO LOCATIONS, ROUTE 2 AND COLRAIN ROAD & ROUTE 2 AND BIG Y ENTRANCE	2	STBG	\$1,994,394	\$1,595,515	\$398,879	Construction. Total project cost of \$2,081,823 inflated 4% per year. Programmed with Regional STBG + HSIP funds. TEC score 9.2.
Total Regional Federal Aid Target Funds Programmed					\$2,248,369	\$1,824,093	\$424,276	
Total Regional Federal Aid Target					\$6,443,474			
Target Funds Available					\$4,195,105			
Section 1B / Earmark or Discretionary Grant Funded Projects								
		No projects programmed						
Section 2A / State Prioritized Reliability Projects								
Bridge Off-system	608634	DEERFIELD- BRIDGE PRESERVATION D-06-001, UPPER ROAD OVER DEERFIELD RIVER	2	STBG-BR-Off	\$7,706,070	\$6,164,856	\$1,541,214	Construction. Total project cost \$7,706,070.
Bridge Systematic Maintenance	608649	COLRAIN- BRIDGE DECK PRESERVATION, C-18-010 & C-18-012, ROUTE 112 OVER THE NORTH RIVER	1	NHPP	\$522,201	\$417,761	\$104,440	Construction. Total project cost \$522,201.
Bridge On-system Non-NHS	609082	CONWAY- BRIDGE REPLACEMENT, C-20-004, NORTH POLAND ROAD OVER POLAND BROOK	1	NHPP	\$3,996,968	\$3,197,574	\$799,394	Construction. Total project cost \$3,996,968.
Section 2A Subtotal					\$12,225,239	\$9,780,191	\$2,445,048	
Section 2B / State Prioritized Modernization Projects								
		No projects programmed						
Section 2C / State Prioritized Expansion Projects								
		No projects programmed						
Section 3 / Planning / Adjustments / Pass-throughs								
		No projects programmed						
Section 4 / Non-Federally Aided Projects								
		No projects programmed						
Total Spending Fiscal Year 2023					\$14,473,608	\$11,604,284	\$2,869,324	

2024 Franklin Region Transportation Improvement Program

STIP Program	MassDOT Project ID	MassDOT Project Description	MassDOT District	Funding Source	Total Programmed Funds	Federal Funds	Non-Federal Funds	Additional Information
Section 1A / Regionally Prioritized Projects								
Roadway Reconstruction	603371	ORANGE- RECONSTRUCTION OF NORTH MAIN STREET, FROM SCHOOL STREET TO LINCOLN AVENUE (0.4 MILES) INCL RELOCATION OF FALL HILL BROOK CULVERT	2	STBG	\$6,512,094	\$5,209,675	\$1,302,419	Construction. Total project cost of \$5,814,370 inflated 4% per year. TEC score 10.3.
Total Regional Federal Aid Target Funds Programmed					\$6,512,094	\$5,209,675	\$1,302,419	
Total Regional Federal Aid Target					\$6,527,927			
Target Funds Available					\$15,833			
Section 1B / Earmark or Discretionary Grant Funded Projects								
		No projects programmed						
Section 2A / State Prioritized Reliability Projects								
Bridge Off-system	602319	NORTHFIELD- BRIDGE REPLACEMENT, N-22-010, BIRNAM ROAD OVER MILL BROOK	2	STBG-BR-Off	\$4,559,620	\$3,647,696	\$911,924	
Bridge Off-system	608849	LEVERETT- BRIDGE REPLACEMENT, L-09-003, MILLERS ROAD OVER ROARING BROOK	2	STBG-BR-Off	\$1,124,381	\$899,505	\$224,876	
Bridge Off-system	608855	ROWE- BRIDGE REPLACEMENT, R-10-008, CYRUS STAGE ROAD OVER POTTER BROOK	1	STBG-BR-Off	\$1,960,627	\$1,568,502	\$392,125	
Bridge Off-system	609427	MONTAGUE- BRIDGE REPLACEMENT, M-28-026, SOUTH STREET OVER SAWMILL RIVER	2	STBG-BR-Off	\$2,925,664	\$2,340,531	\$585,133	
Non-Interstate Pavement	609398	ERVING- RESURFACING AND RELATED WORK ON ROUTE 2	2	NHPP	\$7,049,123	\$5,639,298	\$1,409,825	
Section 2A Subtotal					\$17,619,415	\$14,095,532	\$3,523,883	
Section 2B / State Prioritized Modernization Projects								
		No projects programmed						
Section 2C / State Prioritized Expansion Projects								
		No projects programmed						
Section 3 / Planning / Adjustments / Pass-throughs								
		No projects programmed						
Section 4 / Non-Federally Aided Projects								
		No projects programmed						
Total Spending Fiscal Year 2024					\$24,131,509	\$19,305,207	\$4,826,302	

2025 Franklin Region Transportation Improvement Program

STIP Program	MassDOT Project ID	MassDOT Project Description	MassDOT District	Funding Source	Total Programmed Funds	Federal Funds	Non-Federal Funds	Additional Information
Section 1A / Regionally Prioritized Projects								
Roadway Reconstruction	605983	WHATELY- REHABILITATION OF HAYDENVILLE ROAD, FROM CONWAY ROAD TO THE WILLIAMSBURG T.L. (1.7 MILES)	2	STBG	\$6,375,531	\$5,100,425	\$1,275,106	Construction. Total project cost of \$5,809,535 inflated 4% per year. A/C over 2 years, 2025-2026. TEC score 7.3.
Total Regional Federal Aid Target Funds Programmed					\$6,375,531	\$5,100,425	\$1,275,106	
Total Regional Federal Aid Target					\$6,375,531			
Target Funds Available					\$0			
Section 1B / Earmark or Discretionary Grant Funded Projects								
		No projects programmed						
Section 2A / State Prioritized Reliability Projects								
		No projects programmed						
Section 2B / State Prioritized Modernization Projects								
Section 2B / State Prioritized Modernization Projects								
		No projects programmed						
Section 2C / State Prioritized Expansion Projects								
		No projects programmed						
Section 3 / Planning / Adjustments / Pass-throughs								
		No projects programmed						
Section 4 / Non-Federally Aided Projects								
		No projects programmed						
Total Spending Fiscal Year 2025					\$6,375,531	\$5,100,425	\$1,275,106	

FRANKLIN REGION Transportation Improvement Program
2021 Transit Project List

FTA Program	Transit Agency	FTA Activity Line Item	Project Number	Project Description	Carryover (unobligated)	Federal Funds	RTACAP	MAP	ICB	SCA	TDC	Local Funds	Total Cost
5307					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5309					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5310					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5311					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5337					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5339					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5320					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Other Federal					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Other Non-Federal													
Other Non-Federal	FRTA	114220	RTD0008481	On board AVL/CAD tablets - 25		\$0	\$12,500	\$0	\$0	\$0	\$0	\$0	\$12,500
Other Non-Federal	FRTA	111240	RTD0008483	BUY ASSOC CAP MAINT ITEMS		\$0	\$15,000	\$0	\$0	\$0	\$0	\$0	\$15,000
Other Non-Federal	FRTA	114102	RTD0008486	ENG/DESIGN - MAINT FACILITY		\$0	\$500,000	\$0	\$0	\$0	\$0	\$0	\$500,000
Other Non-Federal	FRTA	114406	RTD0008487	REHAB/RENOVATE - SHOP EQUIPMENT		\$0	\$10,000	\$0	\$0	\$0	\$0	\$0	\$10,000
Other Non-Federal	FRTA	113209	RTD0009100	ACQUIRE - BUS ROUTE SIGNING		\$0	\$75,000	\$0	\$0	\$0	\$0	\$0	\$75,000
Other Non-Federal	FRTA	111204	RTD0009276	BUY REPLACEMENT <30 FT BUS		\$0	\$300,000	\$0	\$0	\$0	\$0	\$0	\$300,000
					Subtotal	\$0	\$912,500	\$0	\$0	\$0	\$0	\$0	\$912,500
					Total	\$0	\$912,500	\$0	\$0	\$0	\$0	\$0	\$912,500

FRANKLIN REGION Transportation Improvement Program
2022 Transit Project List

FTA Program	Transit Agency	FTA Activity Line Item	Project Number	Project Description	Carryover (unobligated)	Federal Funds	RTACAP	MAP	ICB	SCA	TDC	Local Funds	Total Cost
5307					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5309					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5310					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5311					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5337					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5339					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5320					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Other Federal					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Other Non-Federal													
Other Non-Federal	FRTA	111240	RTD0008484	BUY ASSOC CAP MAINT ITEMS		\$0	\$15,000	\$0	\$0	\$0	\$0	\$0	\$15,000
Other Non-Federal	FRTA	114406	RTD0008488	REHAB/RENOVATE - SHOP EQUIPMENT		\$0	\$10,000	\$0	\$0	\$0	\$0	\$0	\$10,000
Other Non-Federal	FRTA	114220	RTD0009101	ACQUIRE - MISC SUPPORT EQUIPMENT		\$0	\$120,000	\$0	\$0	\$0	\$0	\$0	\$120,000
Other Non-Federal	FRTA	111203	RTD0009102	BUY REPLACEMENT <30 FT BUS		\$0	\$400,000	\$0	\$0	\$0	\$0	\$0	\$400,000
Other Non-Federal	FRTA	111202	RTD0009213	BUY REPLACEMENT <35 FT BUS		\$0	\$500,000	\$0	\$0	\$0	\$0	\$0	\$500,000
					Subtotal	\$0	\$1,045,000	\$0	\$0	\$0	\$0	\$0	\$1,045,000
					Total	\$0	\$1,045,000	\$0	\$0	\$0	\$0	\$0	\$1,045,000

FRANKLIN REGION Transportation Improvement Program
2023 Transit Project List

FTA Program	Transit Agency	FTA Activity Line Item	Project Number	Project Description	Carryover (unobligated)	Federal Funds	RTACAP	MAP	ICB	SCA	TDC	Local Funds	Total Cost
5307					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5309					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5310					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5311					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5337					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5339					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5320					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Other Federal					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Other Non-Federal													
Other Non-Federal	FRTA	114220	RTD0008482	ACQUIRE - MISC SUPPORT EQUIPMENT		\$0	\$25,000	\$0	\$0	\$0	\$0	\$0	\$25,000
Other Non-Federal	FRTA	111240	RTD0008485	BUY ASSOC CAP MAINT ITEMS		\$0	\$15,000	\$0	\$0	\$0	\$0	\$0	\$15,000
Other Non-Federal	FRTA	114406	RTD0008489	REHAB/RENOVATE SHOP EQUIPMENT		\$0	\$10,000	\$0	\$0	\$0	\$0	\$0	\$10,000
Other Non-Federal	FRTA	111202	RTD0009103	BUY REPLACEMENT <35 FT BUS		\$0	\$1,500,000	\$0	\$0	\$0	\$0	\$0	\$1,500,000
Other Non-Federal	FRTA	114210	RTD0009104	ACQUIRE - MOBILE FARE COLL EQUIP		\$0	\$500,000	\$0	\$0	\$0	\$0	\$0	\$500,000
					Subtotal	\$0	\$2,050,000	\$0	\$0	\$0	\$0	\$0	\$2,050,000
					Total	\$0	\$2,050,000	\$0	\$0	\$0	\$0	\$0	\$2,050,000

FRANKLIN REGION Transportation Improvement Program

2024 Transit Project List

FTA Program	Transit Agency	FTA Activity Line Item	Project Number	Project Description	Carryover (unobligated)	Federal Funds	RTACAP	MAP	ICB	SCA	TDC	Local Funds	Total Cost
5307					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5309					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5310					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5311					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5337					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5339					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5320					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Other Federal					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Other Non-Federal													
Other Non-Federal	FRTA	111240	RTD0008490	BUY ASSOC CAP MAINT ITEMS		\$0	\$15,000	\$0	\$0	\$0	\$0	\$0	\$15,000
Other Non-Federal	FRTA	114406	RTD0008491	REHAB/RENOVATE SHOP EQUIPMENT		\$0	\$10,000	\$0	\$0	\$0	\$0	\$0	\$10,000
Other Non-Federal	FRTA	113210	RTD0009105	ACQUIRE - BUS PASSENGER SHELTERS		\$0	\$50,000	\$0	\$0	\$0	\$0	\$0	\$50,000
					Subtotal	\$0	\$75,000	\$0	\$0	\$0	\$0	\$0	\$75,000
					Total	\$0	\$75,000	\$0	\$0	\$0	\$0	\$0	\$75,000

FRANKLIN REGION Transportation Improvement Program
 2025 Transit Project List

FTA Program	Transit Agency	FTA Activity Line Item	Project Number	Project Description	Carryover (unobligated)	Federal Funds	RTACAP	MAP	ICB	SCA	TDC	Local Funds	Total Cost
5307					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5309					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5310					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5311					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5337					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5339					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5320					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Other Federal					Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Other Non-Federal													
Other Non-Federal	FRTA	113209	RTD0009214	ACQUIRE - BUS ROUTE SIGNING		\$0	\$75,000	\$0	\$0	\$0	\$0	\$0	\$75,000
					Subtotal	\$0	\$75,000	\$0	\$0	\$0	\$0	\$0	\$75,000
					Total	\$0	\$75,000	\$0	\$0	\$0	\$0	\$0	\$75,000

Financial Summary

The financial plan contained herein is financially constrained and indicates that the Franklin Region Transportation Improvement Program (TIP) reflects the highway program emphasis on the maintenance and operations of the current roadway and bridge system with the ability to provide for additional capacity improvements. Only projects for which funds can reasonably be expected have been included.

Highway Funding Targets

The following table summarizes the federal aid highway funding targets, including state match, and actual programmed project totals for Federal Fiscal Years 2021 through 2025 for the Franklin County region.

Table 6. Highway Funding Targets

Fiscal Year	Federal Aid Target	Federal Aid Funds Programmed
2021	\$6,179,913	\$6,179,913
2022	\$6,305,751	\$4,980,693
2023	\$6,443,474	\$2,248,369
2024	\$6,527,927	\$6,512,094
2025	\$6,375,531	\$6,375,531

Transit Funding Program

The following table lists federal aid and state transit funding estimates for the Franklin County region for Federal Fiscal Years 2021 through 2025.

Table 7. Transit Funding Estimates

Fiscal Year	5339 Federal Funds	State Funds	Local Funds	Total Transit Funds
2021	\$0	\$912,500	\$0	\$912,500
2022	\$0	\$1,045,000	\$0	\$1,045,000
2023	\$0	\$2,050,000	\$0	\$2,050,000
2024	\$0	\$75,000	\$0	\$75,000
2025	\$0	\$75,000	\$0	\$75,000

Status of Projects from Previous Annual Elements

Projects that have been advertised, awarded or constructed in Franklin County in fiscal years 1994 – 2020 are listed in Appendix E at the end of this document. The best available information has been included. In some cases there are gaps in the information due to limited information available from the MassDOT Highway Division Districts and the MassDOT Office of Transportation Planning.

Project Equity Analysis

This TIP includes a chart and map showing the distribution of regional TIP target projects from the past five fiscal years through the last year of this TIP. The number of target projects programmed in each town in Franklin County from FFY 2016 through FFY 2025, along with the total cost of all projects by town, is presented in Table 8; the accompanying figure shows the geographic distribution of these same projects within environmental justice and Title VI areas in Franklin County.

The criteria for determining an Environmental Justice/Title VI Area in Franklin County are:

- Racial minorities comprise at least 9% of the block group's total population.
 - Minorities are defined as all Non-Whites and Hispanics.
 - This threshold was chosen to be consistent with MassDOT's equity analysis, which set its criteria as the percentage of Title VI minority population that is above the statewide average. The average Franklin County minority population is 9.09%.
 - Any block group that meets this criteria is also defined as a Title VI minority area.
- At least 12% of the area's population lives below the poverty level.
 - The U.S. Department of Health and Human Services' 2013 poverty threshold is \$11,888, which falls between the census-defined categories for household income (\$0>\$10,000; \$10,000>\$15,000). Therefore, households making less than \$15,000 are considered below the poverty level.

As shown in Table 8, the 14 regional target projects programmed on the Franklin Region TIP from 2016 through 2025 are distributed across 11 Franklin County towns, comprising a total of \$59,997,750 invested in the region. As the accompanying figure (Fig. 2) shows, 9 of the 14 regional target projects programmed between 2016 and 2025 are in Environmental Justice areas. This represents 64% of the number of target projects programmed and 60%

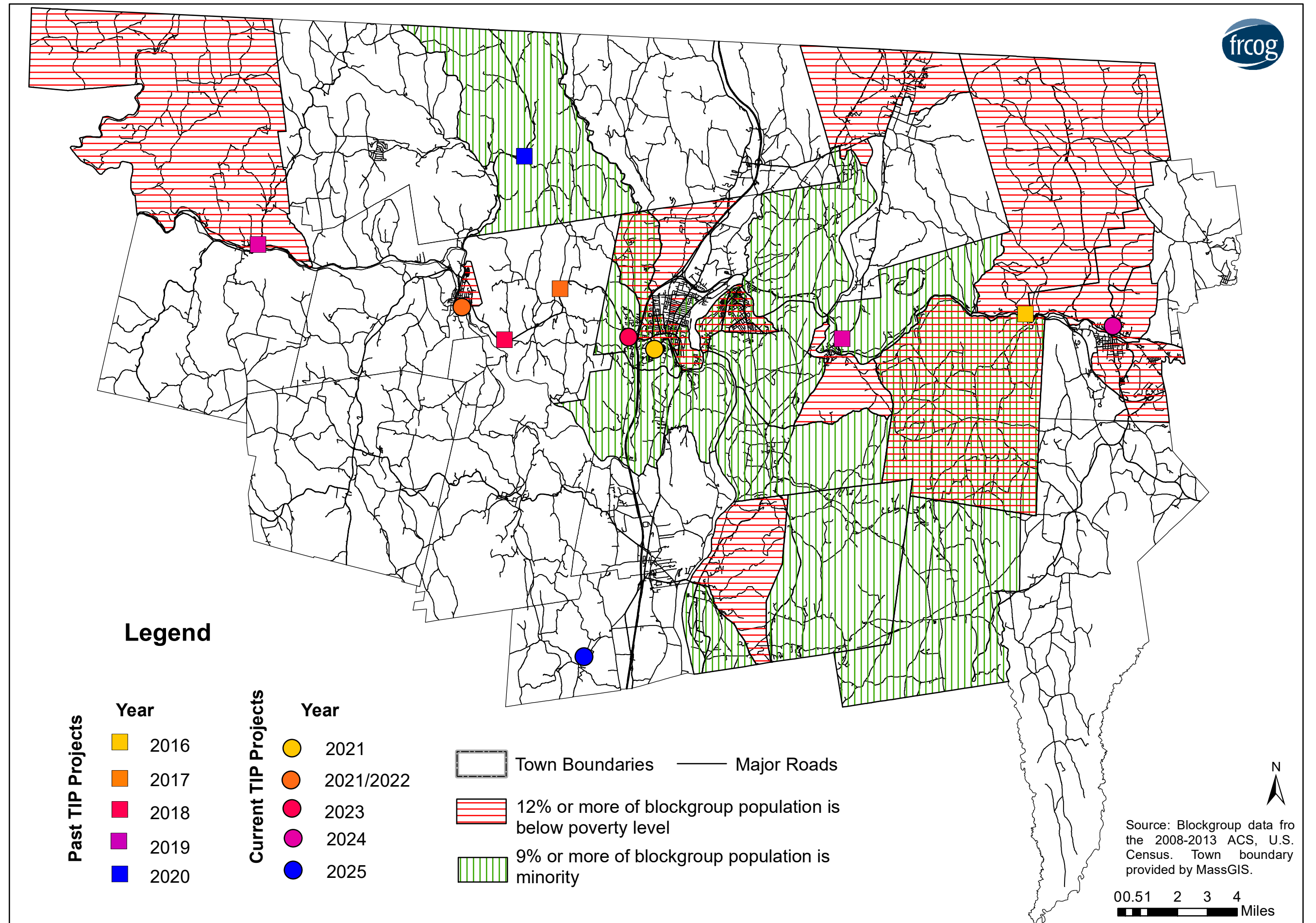
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of the funding allocated to the region, providing improved mobility and safety to the residents and travelers in Franklin County.

Table 8. Geographic Distribution of TIP Target Projects, 2016-2025

Town	Total # of Projects	Total Funding
Ashfield		
Bernardston		
Buckland	1	\$8,183,246
Charlemont	1	\$7,860,350
Colrain	1	\$1,917,473
Conway	1	\$6,739,061
Deerfield		
Erving	2	\$1,124,255
Gill		
Greenfield	2	\$5,457,196
Hawley		
Heath		
Leverett		
Leyden		
Monroe		
Montague	1	\$5,904,070
New Salem		
Northfield		
Orange	1	\$6,512,094
Rowe		
Shelburne	2	\$6,320,310
Shutesbury		
Sunderland	1	\$2,655,824
Warwick		
Wendell		
Whately	1	\$6,739,061
Total	14	\$59,997,750

Geographic Distribution of TIP Projects in Environmental Justice and Title VI Areas (2016-2025)



ADA Status

The FRTA has been in compliance with the Americans with Disabilities Act (ADA) since January 1994. Because the fixed route system in Franklin County is limited, the FRTA had been providing extensive demand response services for several years before the ADA went into effect. The FRTA had no difficulty quickly complying with the requirements of ADA.

The transit projects listed in the FFY 2021-2025 TIP include no new or additional costs related to compliance with ADA. No new paratransit vehicles are being purchased except to replace existing vehicles.

Air Quality Conformity Determination

This section documents the latest air quality conformity determination for the 1997 ozone National Ambient Air Quality Standards (NAAQS) in the FCTPO Region. It covers the applicable conformity requirements according to the latest regulations, regional designation status, legal considerations, and federal guidance.

The 1990 Clean Air Act Amendments (CAAA) require metropolitan planning organizations within nonattainment and maintenance areas to perform air quality conformity determinations prior to the approval of Long-Range Transportation Plans (LRTPs) and Transportation Improvement Programs (TIPs), and at such other times as required by regulation. Clean Air Act (CAA) section 176(c) (42 U.S.C. 7506(c)) requires that federally funded or approved highway and transit activities are consistent with (“conform to”) the purpose of the State Implementation Plan (SIP). Conformity to the purpose of the SIP means that means Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) funding and approvals are given to highway and transit activities that will not cause or contribute to new air quality violations, worsen existing violations, or delay timely attainment of the relevant NAAQS or any interim milestones (42 U.S.C. 7506(c)(1)). EPA’s

transportation conformity rules establish the criteria and procedures for determining whether metropolitan transportation plans, transportation improvement programs (TIPs), and federally supported highway and transit projects conform to the SIP (40 CFR Parts 51.390 and 93).

A nonattainment area is one that the U.S. Environmental Protection Agency (EPA) has designated as not meeting certain air quality standards. A maintenance area is a nonattainment area that now meets the standards and has been re-designated as maintaining the standard. A conformity determination is a demonstration that plans, programs, and projects are consistent with the State Implementation Plan (SIP) for attaining the air quality standards. The CAAA requirement to perform a conformity determination ensures that federal approval and funding go to transportation activities that are consistent with air quality goals.

Legislative and Regulatory Background

The entire Commonwealth of Massachusetts was previously classified as nonattainment for ozone, and was divided into two nonattainment areas. The Eastern Massachusetts ozone nonattainment area included Barnstable, Bristol, Dukes, Essex, Middlesex, Nantucket, Norfolk, Plymouth, Suffolk, and Worcester counties. Berkshire, Franklin, Hampden, and Hampshire counties comprised the Western Massachusetts ozone nonattainment area. With these classifications, the 1990 Clean Air Act Amendments (CAAA) required the Commonwealth to reduce its emissions of volatile organic compounds (VOCs) and nitrogen oxides (NOx), the two major precursors to ozone formation to achieve attainment of the ozone standard.

The 1970 Clean Air Act defined a one-hour national ambient air quality standard (NAAQS) for ground-level ozone. The 1990 CAAA further classified degrees of nonattainment of the one-hour standard based on the severity of the monitored levels of the pollutant. The entire commonwealth of Massachusetts was classified as being in serious nonattainment for the

one-hour ozone standard, with a required attainment date of 1999. The attainment date was later extended, first to 2003 and a second time to 2007.

In 1997, the EPA proposed a new, eight-hour ozone standard that replaced the one-hour standard, effective June 15, 2005. Scientific information had shown that ozone could affect human health at lower levels, and over longer exposure times than one hour. The new standard was challenged in court, and after a lengthy legal battle, the courts upheld it. It was finalized in June 2004. The eight-hour standard is 0.08 parts per million, averaged over eight hours and not to be exceeded more than once per year. Nonattainment areas were again further classified based on the severity of the eight-hour values. Massachusetts as a whole was classified as being in moderate nonattainment for the eight-hour standard, and was separated into two nonattainment areas—Eastern Massachusetts and Western Massachusetts.

In March 2008, EPA published revisions to the eight-hour ozone NAAQS establishing a level of 0.075 ppm, (March 27, 2008; 73 FR 16483). In 2009, EPA announced it would reconsider this standard because it fell outside of the range recommended by the Clean Air Scientific Advisory Committee. However, EPA did not take final action on the reconsideration so the standard would remain at 0.075 ppm.

After reviewing data from Massachusetts monitoring stations, EPA sent a letter on December 16, 2011 proposing that only Dukes County would be designated as nonattainment for the new proposed 0.075 ozone standard. Massachusetts concurred with these findings.

On May 21, 2012, (77 FR 30088), the final rule was published in the Federal Register, defining the 2008 NAAQS at 0.075 ppm, the standard that was promulgated in March 2008. A second rule published on May 21, 2012 (77 FR 30160), revoked the 1997 ozone NAAQS to occur one year after the July 20, 2012 effective date of the 2008 NAAQS.

Also on May 21, 2012, the air quality designations areas for the 2008 NAAQS were published in the Federal Register. In this Federal Register, the only area in Massachusetts that was designated as nonattainment is Dukes County. All other Massachusetts counties were designated as attainment/unclassified for the 2008 standard. On March 6, 2015, (80 FR 12264, effective April 6, 2015) EPA published the Final Rulemaking, “Implementation of the 2008 National Ambient Air Quality Standards (NAAQS) for Ozone: State Implementation Plan Requirements; Final Rule.” This rulemaking confirmed the removal of transportation conformity to the 1997 Ozone NAAQS.

However, on February 16, 2018, the United States Court of Appeals for the District of Columbia Circuit in *South Coast Air Quality Mgmt. District v. EPA* (“South Coast II,” 882 F.3d 1138) held that transportation conformity determinations must be made in areas that were either nonattainment or maintenance for the 1997 ozone NAAQS and attainment for the 2008 ozone NAAQS when the 1997 ozone NAAQS was revoked. These conformity determinations are required in these areas after February 16, 2019. On November 29, 2018, EPA issued Transportation Conformity Guidance for the South Coast II Court Decision (EPA-420-B-18-050, November 2018) that addresses how transportation conformity determinations can be made in areas. According to the guidance, both Eastern and Western Massachusetts, along with several other areas across the country, are now defined as “orphan nonattainment areas” – areas that were designated as nonattainment for the 1997 ozone NAAQS at the time of its revocation (80 FR 12264, March 6, 2015) and were designated attainment for the 2008 ozone NAAQS in EPA’s original designations rule for this NAAQS (77 FR 30160, May 21, 2012).

Current Conformity Determination

After 2/16/19, as a result of the court ruling and the subsequent federal guidance, transportation conformity for the 1997 NAAQS – intended as an “anti-backsliding” measure – now applies to both of Massachusetts’ orphan areas. Therefore, this conformity determination is being made for the 1997 ozone NAAQS on the FCTPO FFY 2021-2025 Transportation Improvement Program and 2020-2040 Regional Transportation Plan.

The transportation conformity regulation at 40 CFR 93.109 sets forth the criteria and procedures for determining conformity. The conformity criteria for TIPs and RTPs include: latest planning assumptions (93.110), latest emissions model (93.111), consultation (93.112), transportation control measures (93.113(b) and (c), and emissions budget and/or interim emissions (93.118 and/or 93.119).

For the 1997 ozone NAAQS areas, transportation conformity for TIPs and RTPs for the 1997 ozone NAAQS can be demonstrated without a regional emissions analysis, per 40 CFR 93.109(c). This provision states that the regional emissions analysis requirement applies one year after the effective date of EPA's nonattainment designation for a NAAQS and until the effective date of revocation of such NAAQS for an area. The 1997 ozone NAAQS revocation was effective on April 6, 2015, and the *South Coast II* court upheld the revocation. As no regional emission analysis is required for this conformity determination, there is no requirement to use the latest emissions model, or budget or interim emissions tests.

Therefore, transportation conformity for the 1997 ozone NAAQS for the (Region) FFY 2021-2025 Transportation Improvement Program and 2020-2040 Regional Transportation Plan can be demonstrated by showing that remaining requirements in Table 1 in 40 CFR 93.109 have been met. These requirements, which are laid out in Section 2.4 of EPA's guidance and addressed below, include:

- Latest planning assumptions (93.110)
- Consultation (93.112)
- Transportation Control Measures (93.113)
- Fiscal Constraint (93.108)

Latest Planning Assumptions:

The use of latest planning assumptions in 40 CFR 93.110 of the conformity rule generally apply to regional emissions analysis. In the 1997 ozone NAAQS areas, the use of latest planning assumptions requirement applies to assumptions about transportation control

measures (TCMs) in an approved SIP (See following section on Timely Implementation of TCMs).

Consultation:

The consultation requirements in 40 CFR 93.112 were addressed both for interagency consultation and public consultation. Interagency consultation was conducted with FHWA, FTA, US EPA Region 1, MassDEP, and the other Massachusetts MPOs, with the most recent conformity consultation meeting held on March 4, 2020. This ongoing consultation is conducted in accordance with the following:

- Massachusetts' Air Pollution Control Regulations 310 CMR 60.03 "Conformity to the State Implementation Plan of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Title 23 USC or the Federal Transit Act"
- The Commonwealth of Massachusetts Memorandum of Understanding by and between Massachusetts Department of Environmental Protection, Massachusetts Executive Office of Transportation and Construction, Massachusetts Metropolitan Planning Organizations concerning the conduct of transportation-air quality planning in the development and implementation of the state implementation plan" (note: this MOU is currently being updated)

Public consultation was conducted consistent with planning rule requirements in 23 CFR 450. Title 23 CFR Section 450.324 and 310 CMR 60.03(6)(h) requires that the development of the TIP, RTP, and related certification documents provide an adequate opportunity for public review and comment. Section 450.316(b) also establishes the outline for MPO public participation programs. The FCTPO's Public Participation Plan was formally updated in 2017. The Public Participation Plan ensures that the public will have access to the TIP and all supporting documentation, provides for public notification of the availability of the TIP and the public's right to review the document and comment thereon, and provides a 21-day public review and comment period prior to the adoption of the TIP and related certification documents.

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The public comment period for this conformity determination commenced on May 1, 2020. Following the 21-day public comment period, any comments received were incorporated into this TIP. This allowed ample opportunity for public comment and FCTPO review of the draft document. The public comment period closed on May 21, 2020 and subsequently, the FCTPO endorsed this air quality conformity determination on May 26, 2020. These procedures comply with the associated federal requirements.

Timely Implementation of Transportation Control Measures:

Transportation Control Measures (TCMs) have been required in the SIP in revisions submitted to EPA in 1979 and 1982. All SIP TCMs have been accomplished through construction or through implementation of ongoing programs. All of the projects have been included in the Region's Transportation Plan (present or past) as recommended projects or projects requiring further study.

DEP submitted to EPA its strategy of programs to show Reasonable Further Progress of a 15% reduction of VOCs in 1996 and the further 9% reduction of NO_x toward attainment of the National Ambient Air Quality Standards (NAAQS) for ozone in 1999. Within that strategy there are no specific TCM projects. The strategy does call for traffic flow improvements to reduce congestion and, therefore, improve air quality. Other transportation-related projects that have been included in the SIP control strategy are listed below:

- Enhanced Inspection and Maintenance Program
- California Low Emission Vehicle Program
- Reformulated Gasoline for On- and Off-Road Vehicles
- Stage II Vapor Recovery at Gasoline Refueling Stations
- Tier I Federal Vehicle Standards

Fiscal Constraint:

Transportation conformity requirements in 40 CFR 93.108 state that TIPs and transportation plans must be fiscally constrained consistent with DOT's metropolitan

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planning regulations at 23 CFR part 450. The FCTPO 2021-2025 Transportation Improvement Program and 2020-2040 Regional Transportation Plan are fiscally constrained.

In summary and based upon the entire process described above, the FCTPO has prepared this conformity determination for the 1997 Ozone NAAQS in accordance with EPA's and Massachusetts' latest conformity regulations and guidance. This conformity determination process demonstrates that the FFY 2021-2025 Transportation Improvement Program and the 2020-2040 Regional Transportation Plan meet the Clean Air Act and Transportation Conformity Rule requirements for the 1997 Ozone NAAQS, and have been prepared following all the guidelines and requirements of these rules during this time period.

Therefore, the implementation of the FCTPO FFY 2021-2025 Transportation Improvement Program and the 2020-2040 Regional Transportation Plan are consistent with the air quality goals of, and in conformity with, the Massachusetts State Implementation Plan.

GREENHOUSE GAS MONITORING AND EVALUATION

This section summarizes the greenhouse gas (GHG) impacts that are anticipated to result from the projects that are included in this FFY 2021-2025 Transportation Improvement Program (TIP). It includes a summary of the state laws and policies that call for reducing greenhouse gas in order to mitigate global climate change, actions that are being to respond to these state laws and policies, the role of regional planning and TIP development in reducing GHG emission and tracking these reductions, and the projected GHG emission impacts from the projects programmed in the TIP.

State Policy Context

The Global Warming Solutions Act (GWSA), which was signed into law in August 2008, makes Massachusetts a leader in setting aggressive and enforceable GHG reduction

targets, and implementing policies and initiatives to achieve these targets. In keeping with the law, on December 29, 2010 the Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA), in consultation with other state agencies and the public, released the Massachusetts *Clean Energy and Climate Plan for 2020*. In December 2014 the Department of Environmental Protection issued new regulations that require Metropolitan Planning Organizations to quantify impacts from project investments, track progress towards reductions, and consider impacts in the prioritization of GHG impacts from project investments. The targets for overall statewide GHG emissions are:

- By 2020: 25 percent reduction below statewide 1990 GHG emission levels
- By 2050: 80 percent reduction below statewide 1990 GHG emission levels

The Role of MPOs

The Commonwealth's MPOs, including the FCTPO, are integrally involved in supporting the GHG reductions mandated under the GWSA. The MPOs are most directly involved in helping to achieve the GHG emissions reductions through the promotion of healthy transportation modes through prioritizing and programming an appropriate balance of roadway, transit, bicycle and pedestrian investments – and assisting smart growth development patterns through the creation of a balanced multi-modal transportation system. This is realized through the transportation goals and policies espoused in the 2020 Regional Transportation Plans (RTPs); the major projects planned in those RTPs; and the mix of new transportation projects that are programmed and implemented through the TIPs. GHG tracking and evaluation processes enable the MPOs/TPOs to identify anticipated GHG impacts of planned and programmed projects, and also to use GHG impacts as a criterion in prioritizing transportation projects.

Project-level GHG Tracking and evaluation in TIPs

It is also important to monitor and evaluate the GHG impacts of the transportation projects that are programmed in the MPO/TPO's TIPs. The TIPs include both the larger, regionally-significant projects from the RTPs, which are reported in the Statewide GHG report, as well

as smaller projects that are not included in the RTP but that may nevertheless have impacts on GHG emissions. The primary objective of this tracking is to enable the MPO/TPOs to evaluate expected GHG impacts of different projects and to use this information as a criterion for prioritizing and programming projects.

Calculation of GHG Impacts for TIP Projects

MassDOT has adopted spreadsheets used by MPO/TPOs to determine CMAQ eligibility and that also include CO₂ impacts. The data and analysis required for these calculations is available from functional design reports that are submitted for projects that would produce a measurable GHG impact.

Projects with Quantified Impacts

RTP Projects

Major capacity expansion projects are expected to have a significant impact on GHG emissions. These projects are included in each MPO/TPOs RTPs and analyzed using either the statewide model or the Boston MPO's regional model, which reflect GHG impacts. As a result, no independent TIP calculations are required.

Quantified Decrease in Emissions

For those projects that are expected to produce a measurable decrease in emissions, the approach for calculating these impacts is described below. These projects are categorized in the following manner:

- Quantified Decrease in Emissions from Traffic Operational Improvement - An intersection reconstruction or signalization project that is projected to reduce delay and congestion.
- Quantified Decrease in Emissions from Pedestrian and Bicycle Infrastructure - A shared-use path that enables increased walking and biking and decreases vehicle-miles traveled (VMT).

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- Quantified Decrease in Emissions from New/Additional Transit Service - A bus or shuttle service that enables increased transit ridership and decreased VMT.
- Quantified Decrease in Emissions from a Park and Ride Lot -A park-and-ride lot that enables increased transit ridership/ increased ridesharing and decreased VMT.
- Quantified Decrease in Emissions from Bus Replacement - a bus replacement that directly reduces GHG emissions generated by service.
- Quantified Decrease in Emissions from Complete Streets Improvements - Improvements to roadway networks that include the addition of bicycle and pedestrian accommodations where none were present before.
- Quantified Decrease in Emissions from Alternative Fuel Vehicle Procurements – A vehicle procurement where alternative fuel/advanced technology vehicles replace traditional gas or diesel vehicles.
- Quantified Decrease in Emissions from Anti-idling Strategies – Implementation of policies such as limiting idling allowed, incorporating anti-idling technology into fleets and using LED lights on trucks for the purpose of illuminating worksites.
- Quantified Decrease in Emissions from Bike Share Projects – A new bike share project or capacity added to an existing project.
- Quantified Decrease in Emissions from Induced Travel Projects – A project that changes roadway capacity.
- Quantified Decrease in Emissions from Speed Reduction Programs – Programs that reduce speed to no less than 55 miles per hour.
- Quantified Decrease in Emissions from Transit Signal Priority Projects – A project that applies this technology to a signal intersection or along a corridor that impacts bus service.

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- Quantified Decrease in Emissions from Truck Stop Electrification Projects – A new truck stop electrification project or capacity added to an existing project.
- Quantified Decrease in Emissions from Other Improvement.

Quantified Increase in Emissions

Projects expected to produce a measurable increase in emissions.

Projects with No Assumed Impacts

No Assumed Impact / Negligible Impact on Emissions

Projects that do not change the capacity or use of a facility (e.g. roadway median barrier or retaining wall replacement, or a bridge rehabilitation/replacement that restores the bridge to its previous condition) are assumed to have no/negligible GHG impact.

Qualitative Decrease in Emissions

Projects expected to produce a minor decrease in emissions that cannot be calculated with any precision. Examples of such projects include roadway repaving, signage improvement, ITS improvement, or transit marketing/customer experience improvement.

Qualitative Increase in Emissions

Projects expected to produce a minor increase in emissions that cannot be calculated with any precision.

Regional Greenhouse Gas Impact Summary Tables for FFY 2021-2025 TIP

The following tables summarize the calculated quantitative and assumed qualitative impacts of the projects included in the regional FFY 2021-2025 TIP. Details of the quantitative impact calculations are provided in Appendix F– Emissions Analysis at the end of this document.

GHG Impacts of Completed Projects

The quantified GHG impacts of highway and transit TIP projects completed since 2015 are listed in Appendix G.

2021-2025 Franklin Region Transportation Improvement Program GHG Impacts - Highway Project List

STIP Section	STIP Program	MassDOT Project ID	MassDOT Project Description	MassDOT District	Funding Source	Total Programmed Funds	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description	Additional Information
TIP Year FFY 2021										
Section 1A / Regionally Prioritized Projects	Roadway Reconstruction	606463	BUCKLAND- RECONSTRUCTION & MINOR WIDENING ON CONWAY STREET, SUMMER STREET, SOUTH STREET & CONWAY ROAD	1	STBG	\$ 4,140,656	Qualitative		No assumed impact/negligible impact on emissions	A/C over 2 years
Section 1A / Regionally Prioritized Projects	Roadway Reconstruction	608724	GREENFIELD- RECONSTRUCTION OF WISDOM WAY, FROM 480 FEET EAST OF PETTY PLAIN ROAD TO MILL STREET (0.43 MILES)	2	STBG	\$ 3,292,100	Quantified	-5,127	Quantified Decrease in Emissions from Complete Streets Project	
Section 2C / State Prioritized Expansion Projects	Bicycle and Pedestrian	607588	NORTHFIELD- BIKE/PED BRIDGE CONSTRUCTION TO REPLACE N-22-002, SCHELL BRIDGE OVER THE CONNECTICUT RIVER	2	CMAQ	\$ 22,007,915	Quantified	-246	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure	
2021 Quantified Impact								-5,373	kg CO₂/yr	
TIP Year FFY 2022										
Section 1A / Regionally Prioritized Projects	Roadway Reconstruction	606463	BUCKLAND- RECONSTRUCTION & MINOR WIDENING ON CONWAY STREET, SUMMER STREET, SOUTH STREET & CONWAY ROAD	1	STBG	\$ 4,140,656	Qualitative		No assumed impact/negligible impact on emissions	A/C over 2 years
Section 1A / Regionally Prioritized Projects	Intersection Improvements	608414	GREENFIELD- INTERSECTION IMPROVEMENTS AT TWO LOCATIONS, ROUTE 2 AND COLRAIN ROAD & ROUTE 2 AND BIG Y ENTRANCE	2	HSIP	\$ 253,975	Qualitative		Qualitative Decrease in Emissions	See project listing below
Section 1A / Regionally Prioritized Projects	Intersection Improvements	608414	GREENFIELD- INTERSECTION IMPROVEMENTS AT TWO LOCATIONS, ROUTE 2 AND COLRAIN ROAD & ROUTE 2 AND BIG Y ENTRANCE	2	STBG	\$ 1,911,120	Qualitative		Qualitative Decrease in Emissions	Assumed decrease in emissions due to traffic signal improvements. Will be quantified when more information is made available
Section 2A / State Prioritized Reliability Projects	Bridge Off-system	608858	CHARLEMONT- BRIDGE REPLACEMENT, C-05-042, EAST OXBOW ROAD OVER OXBOW BROOK	1	STBG-BR-Off	\$ 2,196,912	Qualitative		No assumed impact/negligible impact on emissions	
2022 Quantified Impact								0	kg CO₂/yr	

2021-2025 Franklin Region Transportation Improvement Program GHG Impacts - Highway Project List

STIP Section	STIP Program	MassDOT Project ID	MassDOT Project Description	MassDOT District	Funding Source	Total Programmed Funds	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description	Additional Information
TIP Year FFY 2023										
Section 2A / State Prioritized Reliability Projects	Bridge Off-system	608634	DEERFIELD- BRIDGE PRESERVATION D-06-001, UPPER ROAD OVER DEERFIELD RIVER	2	STBG-BR-Off	\$ 7,706,070	Qualitative		No assumed impact/negligible impact on emissions	
Section 2A / State Prioritized Reliability Projects	Bridge Systematic Maintenance	608649	COLRAIN- BRIDGE DECK PRESERVATION, C-18-010 & C-18-012, ROUTE 112 OVER THE NORTH RIVER	1	NHPP	\$ 522,201	Qualitative		No assumed impact/negligible impact on emissions	
Section 2A / State Prioritized Reliability Projects	Bridge On-system Non-NHS	609082	CONWAY- BRIDGE REPLACEMENT, C-20-004, NORTH POLAND ROAD OVER POLAND BROOK	1	NHPP	\$ 3,996,968	Qualitative		No assumed impact/negligible impact on emissions	
2023 Quantified Impact								0	kg CO₂/yr	
TIP Year FFY 2024										
Section 1A / Regionally Prioritized Projects	Roadway Reconstruction	603371	ORANGE- RECONSTRUCTION OF NORTH MAIN STREET, FROM SCHOOL STREET TO LINCOLN AVENUE (0.4 MILES) INCL RELOCATION OF FALL HILL BROOK CULVERT	2	STBG	\$ 6,512,094	Quantified	-295	Quantified Decrease in Emissions from Complete Streets Project	
Section 2A / State Prioritized Reliability Projects	Bridge Off-system	602319	NORTHFIELD- BRIDGE REPLACEMENT, N-22-010, BIRNAM ROAD OVER MILL BROOK	2	STBG-BR-Off	\$ 4,559,620	Qualitative		No assumed impact/negligible impact on emissions	
Section 2A / State Prioritized Reliability Projects	Bridge Off-system	608849	LEVERETT- BRIDGE REPLACEMENT, L-09-003, MILLERS ROAD OVER ROARING BROOK	2	STBG-BR-Off	\$ 1,124,381	Qualitative		No assumed impact/negligible impact on emissions	

2021-2025 Franklin Region Transportation Improvement Program GHG Impacts - Highway Project List

STIP Section	STIP Program	MassDOT Project ID	MassDOT Project Description	MassDOT District	Funding Source	Total Programmed Funds	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description	Additional Information
TIP Year FFY 2024, continued										
Section 2A / State Prioritized Reliability Projects	Bridge Off-system	608855	ROWE- BRIDGE REPLACEMENT, R-10-008, CYRUS STAGE ROAD OVER POTTER BROOK	1	STBG-BR-Off	\$ 1,960,627	Qualitative		No assumed impact/negligible impact on emissions	
Section 2A / State Prioritized Reliability Projects	Bridge Off-system	609427	MONTAGUE- BRIDGE REPLACEMENT, M-28-026, SOUTH STREET OVER SAWMILL RIVER	2	STBG-BR-Off	\$ 2,925,664	Qualitative		No assumed impact/negligible impact on emissions	
Section 2A / State Prioritized Reliability Projects	Non-Interstate Pavement	609398	ERVING- RESURFACING AND RELATED WORK ON ROUTE 2	2	NHPP	\$ 7,049,123	Qualitative		No assumed impact/negligible impact on emissions	Project may be quantified when more information is made available
2024 Quantified Impact								-295	kg CO₂/yr	
TIP Year FFY 2025										
Section 1A / Regionally Prioritized Projects	Roadway Reconstruction	605983	WHATELY- REHABILITATION OF HAYDENVILLE ROAD, FROM CONWAY ROAD TO THE WILLIAMSBURG T.L. (1.7 MILES)	2	STBG	\$ 6,375,531	Qualitative		No assumed impact/negligible impact on emissions	
2025 Quantified Impact								0	kg CO₂/yr	

2021-2025 Franklin Region Transportation Improvement Program

GHG Impacts - Transit Project List

MassDOT/ FTA Project ID	MassDOT / FTA Project Description	Funding Source	Total Programmed Funds	GHG Analysis Type	GHG CO2 Impact (kg/yr)	GHG Impact Description
TIP Year FFY 2021						
RTD0008481	On board AVL/CAD tablets - 25	RTACAP	\$ 12,500	Qualitative		No assumed impact/negligible impact on emissions
RTD0009100	ACQUIRE - BUS ROUTE SIGNING	RTACAP	\$ 75,000	Qualitative		No assumed impact/negligible impact on emissions
RTD0008483	BUY ASSOC CAP MAINT ITEMS	RTACAP	\$ 15,000	Qualitative		No assumed impact/negligible impact on emissions
RTD0008486	ENG/DESIGN - MAINT FACILITY	RTACAP	\$ 500,000	Qualitative		No assumed impact/negligible impact on emissions
RTD0008487	REHAB/RENOVATE - SHOP EQUIPMENT	RTACAP	\$ 10,000	Qualitative		No assumed impact/negligible impact on emissions
RTD0008480	BUY REPLACEMENT <30 FT BUS	RTACAP	\$ 300,000	Quantified	-538.7	Quantified Decrease in Emissions from Bus Replacement
2021 Quantified Impact					-538.7	kg CO₂/yr
TIP Year FFY 2022						
RTD0009101	ACQUIRE - MISC SUPPORT EQUIPMENT	RTACAP	\$ 120,000	Qualitative		No assumed impact/negligible impact on emissions
RTD0008484	BUY ASSOC CAP MAINT ITEMS	RTACAP	\$ 15,000	Qualitative		No assumed impact/negligible impact on emissions
RTD0008488	REHAB/RENOVATE - SHOP EQUIPMENT	RTACAP	\$ 10,000	Qualitative		No assumed impact/negligible impact on emissions
RTD0009102	BUY REPLACEMENT 30-FT BUS	RTACAP	\$ 400,000	Quantified	164776.2	Quantified Increase in Emissions
TBD	BUY REPLACEMENT 35-FT BUS	RTACAP	\$ 500,000	Quantified	-22555.9	Quantified Decrease in Emissions from Bus Replacement
2022 Quantified Impact					142220.3	kg CO₂/yr

2021-2025 Franklin Region Transportation Improvement Program

GHG Impacts - Transit Project List

MassDOT/ FTA Project ID	MassDOT / FTA Project Description	Funding Source	Total Programmed Funds	GHG Analysis Type	GHG CO2 Impact (kg/yr)	GHG Impact Description
TIP Year FFY 2023						
RTD0008482	ACQUIRE - MISC SUPPORT EQUIPMENT	RTACAP	\$ 25,000	Qualitative		No assumed impact/negligible impact on emissions
RTD0008485	BUY ASSOC CAP MAINT ITEMS	RTACAP	\$ 15,000	Qualitative		No assumed impact/negligible impact on emissions
RTD0008489	REHAB/RENOVATE - SHOP EQUIPMENT	RTACAP	\$ 10,000	Qualitative		No assumed impact/negligible impact on emissions
RTD0009103	BUY REPLACEMENT 35-FT BUS	RTACAP	\$ 1,500,000	Quantified	-55901.9	Quantified Decrease in Emissions from Bus Replacement
RTD0009104	ACQUIRE - MOBILE FARE COLL EQUIP	RTACAP	\$ 500,000	Qualitative		No assumed impact/negligible impact on emissions
2023 Quantified Impact					-55901.9	kg CO₂/yr
TIP Year FFY 2024						
RTD0008490	BUY ASSOC CAP MAINT ITEMS	RTACAP	\$ 15,000	Qualitative		No assumed impact/negligible impact on emissions
RTD0008491	REHAB/RENOVATE - SHOP EQUIPMENT	RTACAP	\$ 10,000	Qualitative		No assumed impact/negligible impact on emissions
RTD0009105	ACQUIRE - BUS PASSENGER SHELTERS	RTACAP	\$ 50,000	Qualitative		No assumed impact/negligible impact on emissions
2024 Quantified Impact					0	kg CO₂/yr
TIP Year FFY 2025						
RTD0009100	ACQUIRE - BUS ROUTE SIGNING		\$ 75,000	Qualitative		No assumed impact/negligible impact on emissions
2025 Quantified Impact					0	kg CO₂/yr

Comments Received During the Public Comment Period

A 21-day public review and comment period was observed from May 1 through May 21 2020. Comments, from MassDOT Office of Transportation Planning were provided in the form of a checklist. These comments were incorporated into the final revision of this document. A letter from was submitted from the Town of Whately in support of project 605983 Rehabilitation of Haydenville Road, as was an email from the Town Administrator for Buckland, advocating to program Project 606463 Reconstruction & Minor Widening on Conway Street, Summer Street, South Street & Conway Road. All comments received are reproduced in Appendix H.

Appendix A – Project Waiting List



Franklin Region
Transportation Improvement Program
Project Waiting List

MassDOT Project ID	MassDOT Project Description	MassDOT District	Project Type	Est. Project Cost	TEC Score	Design Status	Project Approval Date
603727	ATHOL- ORANGE- BRIDGE REPLACEMENT, A-15-017=O-03-001, LOGAN ROAD OVER THE EAST BRANCH OF THE TULLY RIVER	2	Bridge Replacement	\$ 1,248,000	n/a	pre-25%	11/4/2002
607674	BUCKLAND- CHARLEMONT- BRIDGE REHABILITATION, B-28-009=C-05-013, ST 2 OVER DEERFIELD RIVER	1	Bridge Rehabilitation	\$ 11,657,999	n/a	100%	9/16/2013
607610	BUCKLAND- CONSTRUCTION OF BICYCLE SHOULDERS ON ROUTE 112, FROM MOHAWK TRAIL REGIONAL HIGH SCHOOL TO NORTH STREET	1	Hwy. Reconstr - Minor Widening	\$ 6,850,000	5.2	pre-25%	11/6/2014
605882	BUCKLAND- SHELBURNE- BRIDGE PRESERVATION, B-28-022=S-11-001, ROUTE 2A (BRIDGE STREET) OVER DEERFIELD RIVER	1	Bridge Reconstruction /Rehab	\$ 1,010,000	n/a	pre-25%	10/30/2009
608165	COLRAIN- RESURFACING AND RELATED WORK ON ROUTE 112 FROM MM 46.55 TO MM 48.06	1	Resurfacing	\$ 1,900,000	3.8	pre-25%	3/19/2015
605732	DEERFIELD- BRIDGE REPLACEMENT, D-06-030, ROUTE 116 OVER THE MILL RIVER	2	Bridge Reconstruction /Rehab	\$ 2,300,000	n/a	pre-25%	8/12/2010
604959	ERVING- RECONSTRUCTION & IMPROVEMENTS ON ROUTE 2 (FARLEY AREA) FROM MM 60 TO MM 62	2	Hwy Reconstr-No Added Capacity	\$ 6,692,300	10	pre-25%	7/26/2012
604818	ERVING- RECONSTRUCTION OF ROUTE 2 (ERVING CENTER) FROM MM 62 TO MM 63.6	2	Hwy Reconstr-No Added Capacity	\$ 16,397,300	10.3	25%	6/1/2006
605036	GILL- GREENFIELD- IMPROVEMENTS & UPGRADES ON ROUTE 2 FROM ADAMS RD/RTE 2A TO FRENCH KING BRIDGE - GILL/ERVING T.L.	2	Hwy Reconstr-No Added Capacity	\$ 2,665,406	9	25%	9/10/2007



Franklin Region
Transportation Improvement Program
Project Waiting List

MassDOT Project ID	MassDOT Project Description	MassDOT District	Project Type	Est. Project Cost	TEC Score	Design Status	Project Approval Date
609202	GREENFIELD- RESURFACING AND RELATED WORK ON MONTAGUE CITY ROAD	2	Resurfacing	\$ 3,343,983		pre-25%	7/19/2018
608248	MONROE- BRIDGE REPLACEMENT, M-26-004, RAYCROFT ROAD OVER DUNBAR BROOK	1	Bridge Replacement	\$ 679,388	n/a	pre-25%	6/25/2015
608783	SUNDERLAND- ROUNDABOUT CONSTRUCTION AT INTERSECTIONS OF ROUTE 116 AND ROUTE 47	2	Traffic Signals	\$ 2,682,380	13.4	pre-25%	3/23/2017

Appendix B – Transportation Evaluation Criteria



Franklin Region Transportation Improvement Program
Eligible Projects by TEC Score

MassDOT Project ID	MassDOT Project Description	TIP Year	Est. Project Cost	TEC Score
608783	SUNDERLAND- ROUNDABOUT CONSTRUCTION AT INTERSECTIONS OF ROUTE 116 AND ROUTE 47	Appendix	\$ 2,682,380	13.4
607538	COLRAIN- INTERSECTION IMPROVEMENTS @ MAIN ROAD, JACKSONVILLE ROAD (ROUTE 112) & GREENFIELD ROAD	2020	\$ 1,917,473	11.3
607245	SUNDERLAND- RESURFACING & RELATED WORK ON A SECTION OF NORTH MAIN STREET (ROUTE 47), FROM ROUTE 116 TO CLAYBROOK DRIVE	2020	\$ 3,240,634	10.8
606011	DEERFIELD- WHATELY- RESURFACING & RELATED WORK ON ROUTES 5 &10, FROM OLD STATE ROAD TO CONWAY ROAD (1.1 MILES)	2020	\$ 4,572,497	10.3
603371	ORANGE- RECONSTRUCTION OF NORTH MAIN STREET, FROM SCHOOL STREET TO LINCOLN AVENUE (0.4 MILES) INCL RELOCATION OF FALL HILL BROOK CULVERT	2024	\$ 5,814,370	10.3
604818	ERVING- RECONSTRUCTION OF ROUTE 2 (ERVING CENTER) FROM MM 62 TO MM 63.6	Appendix	\$ 16,397,300	10.3
604959	ERVING- RECONSTRUCTION & IMPROVEMENTS ON ROUTE 2 (FARLEY AREA) FROM MM 60 TO MM 62	Appendix	\$ 6,692,300	10.0
608414	GREENFIELD- INTERSECTION IMPROVEMENTS AT TWO LOCATIONS, ROUTE 2 AND COLRAIN ROAD & ROUTE 2 AND BIG Y ENTRANCE	2022	\$ 2,081,823	9.2
606463	BUCKLAND- RECONSTRUCTION & MINOR WIDENING ON CONWAY STREET, SOUTH STREET & CONWAY ROAD	2022	\$ 7,868,506	9.1
605036	GILL- GREENFIELD- IMPROVEMENTS & UPGRADES ON ROUTE 2 FROM ADAMS RD/RTE 2A TO FRENCH KING BRIDGE - GILL/ERVING T.L.	Appendix	\$ 2,665,406	9.0
608724	GREENFIELD- RECONSTRUCTION OF WISDOM WAY, FROM 480 FEET EAST OF PETTY PLAIN ROAD TO MILL STREET (0.43 MILES)	2021	\$ 3,292,100	7.8



Franklin Region Transportation Improvement Program
Eligible Projects by TEC Score

MassDOT Project ID	MassDOT Project Description	TIP Year	Est. Project Cost	TEC Score
605983	WHATELY- REHABILITATION OF HAYDENVILLE ROAD, FROM CONWAY ROAD TO THE WILLIAMSBURG T.L. (2.7 MILES)	2025	\$ 5,809,535	7.3
607588	NORTHFIELD- CONSTRUCT BIKE/PED BRIDGE TO REPLACE N-22-002, SCHELL BRIDGE OVER THE CONNECTICUT RIVER	2021	\$ 22,007,915	6.6
607610	BUCKLAND- CONSTRUCTION OF BICYCLE SHOULDERS ON ROUTE 112, FROM MOHAWK TRAIL REGIONAL HIGH SCHOOL TO NORTH STREET	Appendix	\$ 6,850,000	5.2
608165	COLRAIN- RESURFACING AND RELATED WORK ON ROUTE 112 FROM MM 46.55 TO MM 48.06	Appendix	\$ 1,900,000	3.8



TRANSPORTATION EVALUATION CRITERIA

Highway-funded Roadway Improvement/Expansion Projects

Project ID
Project Description
Design Status
Est. Cost
Project Length
AADT
Project Scope

TRANSPORTATION CRITERIA	Cost Effectiveness	Cost per lane Mile		
		Cost per AADT		
		Cost per AADT per lane mile		
	Condition	Magnitude of pavement condition improvement	0	Avg. Score (-3 to +3)
		Magnitude of improvement of other infrastructure elements	0	0
	Mobility	Effect on magnitude and duration of congestion	0	Avg. Score (-3 to +3)
		Effect on travel time and connectivity/access	0	
		Effect on other modes using facility	0	
		Effect on regional and local traffic	0	0
	Safety	Effect on crash rate compared to state average	0	Avg. Score (-3 to +3)
		Effect on bicycle and pedestrian safety	0	0
OTHER IMPACT CRITERIA	Community Effects and Support	Residential effects: right-of-way, noise, aesthetics, cut-through traffic, other	0	Avg. Score (-3 to +3)
		Environmental Justice effects	0	
		Public, local government, legislative, and regional support	0	
		Effect on development and redevelopment of housing stock	0	0
	Land Use and Economic Development	Business effects: right-of-way, access, noise, traffic, parking, freight access, other	0	Avg. Score (-3 to +3)
		Sustainable development effects	0	
		Consistent with regional land-use and economic development plans	0	
		Effect on job creation.	0	0
	Environmental Effects	Air Quality/Climate effects	0	Avg. Score (-3 to +3)
		Water quality/supply effects; wetlands effects	0	
		Historic and cultural resource effects	0	0
Total Score (-18 to +18)				0

Appendix C – MassDOT STIP Project Revision Procedures and Definitions

MassDOT State Transportation Improvement Program (STIP) Project Revision Definitions and Procedures

The STIP is a “living” document and is likely to be modified during the course of the year. The definitions and procedures outlined in this section are followed when project based revisions to the STIP are necessary.

Definitions of STIP Revision Procedures

Amendment: A revision to the State Transportation Improvement Program (STIP) that requires public review and demonstration of financial constraint. The public process for a STIP amendment requires a publicly advertised 21-day public comment period and for MassDOT to address any public commentary prior to sending to the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) for review and approval.

Adjustment: A revision to the STIP that does not require a public process, but that is required to be included in a MassDOT STIP action with a demonstration of financial constraint for FHWA/FTA approval.

Administrative Modification: A revision to the STIP that is minor enough in nature to require neither a public process nor FHWA/FTA approval, but that does involve a notification to federal partners.

Highway Project STIP Revision Definitions and Procedures

Type of Revision	Definition	Procedure	Notes
Major Project Cost Change	Increase or decrease of \$500,000 or greater for projects programmed under \$5,000,000 and greater than 10% of the total cost for projects programmed over \$5,000,000.	Amendment	The “increase” or “decrease” in cost is relative to the Total Federal Participating Cost (TFPC) of a project.
Minor Project Cost Change	Increase or decrease of \$499,999 or less for projects programmed under \$5,000,000 and less than 10% of the total cost for projects programmed over \$5,000,000.	Adjustment	See above.
Project Description Change	Change in the description of the project as it is listed in the STIP.	Adjustment or Administrative Modification	Project description changes are treated as administrative modifications for minor changes (e.g. spelling errors, more detailed descriptions, adding mile-markers, etc.).
Major Project Scope Change	A revision to the project scope large enough to necessitate an additional review by MassDOT's Project Review Committee (PRC) – typically accompanied by major project cost change.	Amendment	In some cases, a major scope change will require the initiation of a new project through MassDOT's Project Initiation Form (PIF), and review/approval by PRC. This would require deactivation and removal of the currently programmed project.
Minor Project Scope Change	A minor revision to the project scope that does not significantly alter the original PRC-approved scope of work.	Adjustment	In many cases, changes in this category will also include a minor cost change.
Project Addition	The programming of a new project in any federal fiscal year of the active TIP.	Amendment or Adjustment	Project additions are treated as amendments if the project was not part of any previously approved STIP that has been vetted through the public process.
Project Removal	The removal of a project in any federal fiscal year of the active TIP.	Amendment	Exception: if a project is removed from an active TIP or the STIP due to it being previously advanced/advertised, or is moved to the statewide list from a regional TIP, the action would be considered an adjustment.
Change in Funding Source	A change in the project's funding source, including federal and non-federal sources which fall within the project cost change revisions listed above.	Adjustment	Changes in funding sources for projects are permissible for advertisement purposes if the FHWA Division Office has been consulted.
Change in Additional Information	A change in any item listed in the “Additional Information” column of the STIP not covered in any other item listed here (e.g. earmark details, project proponent, etc.)	Administrative Modification	N/A
Change in Year of Programming	Moving a currently programmed project earlier or later than an originally programmed year.	Amendment	Changes to a project delivery schedule (advancement or delay) requires an amendment for the change in programmed FFY.

Transit Project STIP Revision Definitions and Procedures

Type of Revision	Definition	Procedure	Notes
Major Project Cost Change	Increase or decrease of \$500,000 or greater for projects under \$5,000,000 and greater than 10% of the total cost for projects exceeding \$5,000,000.	Amendment	The “increase” or “decrease” in cost is relative to the combined federal and non-federal aid participating cost of the project.
Minor Project Cost Change	Increase or decrease of \$499,999 or less for projects under \$5,000,000 and less than 10% of the total cost for projects exceeding \$5,000,000.	Adjustment	See above.
Project Description Change	Change in the description of the project as it is listed in the STIP.	Adjustment or Administrative Modification	Project description changes are treated as administrative modifications for minor changes (e.g. spelling errors, more detailed descriptions, etc.).
Major Project Scope Change	A revision to the project scope deemed large enough to require public review and comment (e.g. changing the number of stations)	Amendment	In many cases, changes in this category will also include a major cost change.
Minor Project Scope Change	A minor revision to the project scope that does not significantly alter the original scope of work (e.g. changes to the bus model for vehicle replacement projects).	Adjustment	In many cases, changes in this category will also include a minor cost change.
Project Addition	The programming of a new project in any federal fiscal year of the current TIP.	Amendment or Adjustment	Project additions are treated as amendments if the project was not part of any previously approved STIP that has been vetted through the public process.
Project Removal	The removal of a project in any federal fiscal year of the current TIP.	Amendment	Exception: if a project is removed from a TIP or the STIP due to it being previously advanced/advertised, or is moved to the statewide list from a regional TIP, the action would be considered an adjustment.
Change in Funding Source	Change in the funding source, including federal and non-federal sources that fall within project cost change revisions listed in the first two rows.	Adjustment	Changes in funding sources for projects are permissible for obligation purposes with written notice from the FTA region office.
Change in Year of Programming	Moving a currently programmed project earlier or later than the originally programmed year.	Amendment or Adjustment	Note: Federal funds shall be programmed in the federal fiscal year in which the award will occur. Changes in year of programming are only treated as adjustments if they involve advancing federal funds to align with the year of the grant award.

Exceptions

Although MassDOT typically holds a 21-day public comment period for amendments, in the event of extenuating circumstances beyond the agency's control, the comment period may be shortened or waived in consultation with FHWA Division Office and/or the FTA Regional Office. Additionally, MassDOT may make exceptions to the procedures outlined above and treat amendments as adjustments and/or adjustments as administrative modifications, but these exceptions will also require coordination with and concurrence by MassDOT's federal partners and the affected MPO.

Appendix D – TIP Project Descriptions

Franklin Region Transportation Improvement Program Projects FFY 2021-2025

FFY 2021

Project 606463 BUCKLAND- RECONSTRUCTION & MINOR WIDENING ON CONWAY STREET, SOUTH STREET & CONWAY ROAD

This project will reconstruct and widen 1.7 miles of municipally owned roadway, including 1100 feet of sidewalk reconstruction to achieve ADA compliance. Project will also include reset/replacement of roadside curbing where required. Drainage repairs/upgrades will target improving sub-grade and surface water runoff. Guardrail runs and end-treatments on Conway Road will be upgraded to current safety standards. New traffic signs and markings will also be included.

Project 608724 GREENFIELD- RECONSTRUCTION OF WISDOM WAY, FROM 480 FEET EAST OF PETTY PLAIN ROAD TO MILL STREET (0.43 MILES)

This project consists of reconstruction of 0.43 miles of Wisdom Way in Greenfield, from 480 feet east of Petty Plain Road to Mill Street. Project consists of reconstruction of retaining walls, drainage repairs, new wheelchair ramps, sidewalk reconstruction, pavement markings, signage, and a new shared use path.

Project 607588 NORTHFIELD- CONSTRUCT BIKE/PED BRIDGE TO REPLACE N-22-002, SCHELL BRIDGE OVER THE CONNECTICUT RIVER

This project will include the demolition of the existing deteriorated bridge structure and replacement with a new multi-span pedestrian bridge over the Connecticut River.

FFY 2022

Project 608858 CHARLEMONT - BRIDGE REPLACEMENT, C-05-042, EAST OXBOW ROAD OVER OXBOW BROOK

This municipally owned, steel bridge is 50.5 feet long, 14.1 feet wide and was built in 1940. The bridge is structurally deficient and is currently posted with a weight restriction (posted at 16/20/31 tons). This project proposes a full replacement of this bridge.

Franklin Region Transportation Improvement Program Projects FFY 2021-2025

FFY 2023

Project 608414 GREENFIELD- INTERSECTION IMPROVEMENTS AT TWO LOCATIONS, ROUTE 2 AND COLRAIN ROAD & ROUTE 2 AND BIG Y ENTRANCE

The project involves traffic signal and intersection improvements at the intersections of Route 2 and Colrain Road and Route 2 at the Big Y entrance. The signal at Colrain Road will be a signal reconstruction, and the Big Y entrance will be a new signal. Other improvements to be considered include shoulder widening, new sidewalks and wheelchair ramps, pavement markings, drainage, and signage.

Project 608649 COLRAIN- BRIDGE DECK PRESERVATION, C-18-010 & C-18-012, ROUTE 112 OVER THE NORTH RIVER

This project will perform federal aid eligible deck maintenance on two structures to improve deck condition and preserve serviceability of the bridges.

Project 609082 CONWAY- BRIDGE REPLACEMENT, C-20-004, NORTH POLAND ROAD OVER POLAND BROOK

This project consists of replacement of the bridge structure.

Project 608634 DEERFIELD - BRIDGE PRESERVATION D-06-001, UPPER ROAD OVER DEERFIELD RIVER

This project consists of the rehabilitation of Bridge No. D-06-001 (Upper Road over the Deerfield River) in Deerfield, including the installation of scour countermeasures; a potential full bridge replacement will be evaluated.

FFY 2024

Project 609398 ERVING- RESURFACING AND RELATED WORK ON ROUTE 2

This project involves resurfacing and related work on a portion of Route 2 in Erving, from mile marker 60.25 to 63.9 for a total of 3.65 miles.

Franklin Region Transportation Improvement Program Projects FFY 2021-2025

Project 608849 LEVERETT - BRIDGE REPLACEMENT, L-09-003, MILLERS ROAD OVER ROARING BROOK

This project consists of a full bridge replacement for L-09-003 (Millers Road over Roaring Brook) in Leverett.

Project 609427 MONTAGUE- BRIDGE REPLACEMENT, M-28-026, SOUTH STREET OVER SAWMILL RIVER

This project consists of complete replacement of the bridge structure.

Project 602319 NORTHFIELD- BRIDGE REPLACEMENT, N-22-010, BIRNAM ROAD OVER MILL BROOK

The purpose of this project is to replace and widen the existing bridge and improve the transition of the approach roadway width into the new bridge. The bridge will be closed during construction and a detour will be provided. The existing bridge will remain with no sidewalks.

Project 603371 ORANGE- RECONSTRUCTION OF NORTH MAIN STREET, FROM SCHOOL STREET TO LINCOLN AVENUE (0.4 MILES) INCL RELOCATION OF FALL HILL BROOK CULVERT

The proposed project begins on North Main Street at the School Street intersection and ends at the intersection of Lincoln Avenue, a distance of approximately 0.4 miles. The project consists of roadway reconstruction, rehabilitation and reconstruction of various retaining walls and two major drainage culverts, ADA compliant reconstruction of existing sidewalks and wheelchair ramps, drainage system modifications and improvements; construction of curb and bituminous concrete berm installations; traffic signing; landscaping and streetscape improvements and other incidental work.

Franklin Region Transportation Improvement Program Projects FFY 2021-2025

Project 608855 ROWE - BRIDGE REPLACEMENT, R-10-008, CYRUS STAGE ROAD OVER POTTER BROOK

This municipally owned, steel arch bridge is 27.9 feet long, 24.9 feet wide and was built in 1939. The bridge is structurally deficient and has been posted with a weight restriction since 2006 (posted at 20/25/40 tons). This project proposes a full replacement of this bridge.

FFY 2025

Project 605983 WHATELY - REHABILITATION OF HAYDEVILLE ROAD, FROM CONWAY ROAD TO THE WILLIAMSBURG T.L. (1.7 MILES)

Work for the Haydenville Road rehabilitation project in Whately will consist of reclaiming the existing paved surface, box widening with an HMA binder course and paving with an HMA modified top surface course . Work will include a new drainage system to improve storm water quality near the Northampton Reservoir, new pavement markings and guardrail repair and replacement. The project limits are as follows: Haydenville Rd from Conway Rd to the Williamsburg T.L., - drainage improvements may continue another 1,000 feet to an appropriate outlet for a total project length of 1.7 miles.

Appendix E – History of Project Advertising 1994 – 2019



Franklin Region
Transportation Improvement Program
Project Waiting List

MassDOT Project ID	Town	Project Description	Funding Year	Funding Source	Project Cost	Project Status
400029	Ashfield	Route 116 Resurfacing	1994	Federal	\$ 806,493	Construction complete 6/17/94
21141	Ashfield	Route 116 Road reconstruction	1997		\$ 1,810,059	Advertised 3/22/97. Construction Complete 11/99
600727	Ashfield	Williamsburg Road Reconstruction	2001	NFA	\$ 2,388,966	Advertised 6/23/01. Complete
602589	Ashfield	Route 116 South River Bridge Replacements	2004	FA	\$ 1,365,259	Advertised 9/18/04. Complete 07
603578	Ashfield	Route 116 and Spruce Corner Replace bridge A-13-010	2005	FA	\$ 881,234	Advertised 7/5/05. Complete 07
603578	Ashfield	Route 116 and Spruce Corner Cost adjustment for bridge A-13-010	2005	FA	\$ 337,182	Advertised 8/13/05. Complete
606411	Ashfield	Route 116 Retaining wall repairs at 2 locations along South River	2012	FA	\$ 2,520,886	Advertised 12/31/11. Complete
602050	Ashfield Conway	Route 116 Resurface	2003	FA	\$ 5,067,072	Advertised 9/27/03. Complete
602050	Ashfield Conway	Route 116 Resurfacing – PV change	2004	FA	\$ 765,566	Advertised 9/25/04. Complete
	Athol Phillipston	Athol/Phillipston Route 2 Safety Improvements	2004	FA	\$ 14,517,560	Advertised 9/4/04. Complete 11/07
	Bernardston	Rte. 5 over Couch Brook Bridge Replacement	1994	Bridge		Construction complete 11/26/95
	Bernardston	I-91 Resurfacing	1995	NFA		Construction complete 7/3/95
	Bernardston	Route 10 over the Fall River Bridge betterment	1995	NFA		Construction complete 7/23/95
	Bernardston	Routes 5 and 10 Guardrail replacement	1995	NFA		Construction Complete 6/30/95
	Bernardston	Route 5/10 Rt 5/10 bridge replacement over B&M	2005	FA	\$ 3,640,117	Advertised 6/4/05. Complete
	Bernardston	Route 10/Falls River Bridge rehabilitation B-10-1	2006	NFA	\$ 592,393	Advertised 9/16/06. Complete
	Bernardston	Route 5/10 Reconstruction	2007	FA	\$ 5,226,320	Advertised 9/22/07. Complete
605803	Bernardston	Route 5/10 Replace culvert B-10-026	2011	STP	\$ 376,170	Advertised 6/11/11. Construction complete
606010	Bernardston	Route 10 Resurfacing and related work, from I-91 to Route 142	2013	STP	\$ 1,911,850	Advertised 10/13/12. Construction complete
606173	Bernardston	INTERSTATE MAINTENANCE & RELATED WORK ON I-91, FROM MM 50.4 TO MM 54.9 (4.5 MILES)	2014	IM	\$ 6,411,536	Advertised 8/31/13. Construction complete Spring 2015.
81106	Buckland	Route 112 over Route 2 Bridge replacement	1996		\$ 1,181,639	Construction complete 1999



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MassDOT Project ID	Town	Project Description	Funding Year	Funding Source	Project Cost	Project Status
603173	Buckland	Hog Hollow Rd. Replace Bridge B-28-12) over Clesson Brook	2002	BRZ	\$ 349,250	Advertised 8/24/02. Complete
602954	Buckland	Bridge Street Shelburne Falls Downtown Streetscape	2003	FA	\$ 184,376	Advertised 9/13/03. Complete
602232	Buckland	Route 112 Clesson Brook Bridge Replacement	2004	FA	\$ 1,323,390	Advertised 9/18/04. Complete 07
602441	Buckland	Upper Street Replace Bridge B-28-011 over Clesson Brook	2004	FA	\$ 498,975	Advertised 5/1/04. Complete
604268	Buckland	State Street Reconstruction from Clement Street to Route 2	2010	STP	\$ 3,141,100	Advertised 7/31/10. Complete
606441	Buckland	Route 112 Bridge replacement (B-28-002) on Route 112 over Clarks Brook	2012	BR	\$ 2,052,130	Advertised 6/23/12. Construction complete
608311	Buckland	BRIDGE MAINTENANCE, B-28-003, ROUTE 112 OVER ROUTE 2 AND PAN AM RAILROAD	2017	NHPP	\$ 568,806	Advertised 9/2/2017. Construction complete Summer 2020.
80981	Buckland Ashfield Goshen	Route 112 Resurfacing	1994	NFA	\$ 2,713,782	Construction complete 6/25/96
96452	Buckland Shelburne	Routes 2 and 112 Resurfacing and related work	1994	NFA	\$ 506,688	Construction complete 5/24/95
601570	Buckland Shelburne	Route 2A (Bridge St.) Iron Bridge Cleaning and painting bridge	1997		\$ 816,105	Advertised 8/17/96. Complete
605453	Buckland Shelburne	Route 2 over Route 112 and Deerfield River Bridge Betterment, B-28-032 = S-11-014	2010	Special Bridge	\$ 8,096,590	Advertised 7/31/10. Complete
602316	Buckland Charlemont	RESURFACING & RELATED WORK ON ROUTE 2, FROM MM 27.41 (R.R. BRIDGE) TO MM 37.39 (BUCKLAND/SHELBURNE T.L.) EXCLUDING MM 29.5 TO MM 30.75 (VILLAGE CENTER)	2017	STP NHPP	\$ 6,850,775	Advertised 7/30/2016. Construction complete Summer 2020.
600606	Charlemont	Route 8A Temporary bridge	1995	NFA	\$ 333,239	Construction complete 8/19/95
602287	Charlemont	Route 2 Construction of Park and Ride	2002	CMAQ	\$ 216,969	Advertised 8/24/02. Complete
602292	Charlemont	Mountain Road Replace Bridge C-05-006 over Mill Brook	2003	FA	\$ 703,977	Advertised 8/16/03. Complete
602366	Charlemont	South River Road Replace Bridge C-5-25 over Bozrah Brook	2003	FA	\$ 535,455	Advertised 7/5/03. Complete
604700	Charlemont	Route 2 Bridge Betterment	2006	FA	\$ 3,559,186	Advertised 8/5/06. Complete



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604412	Charlemont	Route 2 Repair bridge C-05-11 over Mill Brook and replace bridge C-05-15 over Avery Brook	2007	FA	\$ 2,505,563	Advertised 10/7/06. Complete
605842	Charlemont	Route 2 Replace Culvert over Oxbow Book and Wilder Brook C-05-016 & 017	2011	STP	\$ 2,102,053	Advertised 9/17/11. Complete
603704	Charlemont	Mountain Road Replace Bridge C-05-036 over Hartwell Brook	2011	GANS	\$ 1,202,068	Advertised 7/23/11. Complete
606509	Charlemont	Route 2 Culvert replacement (C-05-025) on Route 2 over Hartwell Brook	2012	STP	\$ 1,462,007	Advertised 8/25/12. Construction complete
601412	Charlemont	Charlemont/Maxwell Road Br. Bridge replacement	1999*	BRRF	\$ 504,260	Advertised with 1999 Supplemental Budget. Complete
606507	Charlemont	ROADWAY RECONSTRUCTION AND VILLAGE CENTER TRAFFIC CALMING ON ROUTE 2, FROM MM 29.5 TO MM 31.0	2019 2020	STBG CMAQ SW STBG	\$ 5,692,739	Advertised 9/19/2015. Construction complete Spring 2017.
601678	Charlemont Rowe	Zoar Road Bridge replacement	2001	NFA	\$ 1,519,461	Advertised 4/7/01. Complete
601616	Charlemont Shelburne	North River Rd. Bridge replacement over North River	2001	NFA	\$ 750,826	Advertised 9/1/01. Complete
601616	Charlemont Shelburne	North River Rd. Bridge replacement over North River	2002	NFA	\$ 970,416	Advertised 4/13/02. (prev. adv. 9/1/01 for \$750,826). Complete
600090	Colrain	Route 112 Resurfacing and related work	1994	NFA	\$ 925,480	Construction complete 7/25/95
26660	Colrain	Foundry Village Road Bridge reconstruction	1995	BRRF	\$ 976,042	Construction complete 11/25/95
600739	Colrain	Franklin Road Bridge rehabilitation	1998	BRRF	\$ 387,486	Advertised 1/10/98. Complete
602056	Colrain	White Archambo Road Bridge replacement over west branch of North River	2001	NFA	\$ 359,566	Advertised 3/31/01. Complete
601497	Colrain	Route 112 (Griswoldville Rd.) Replace bridge over the North River	2002	NFA	\$ 1,892,527	Advertised 2/23/02. Complete
601496	Colrain	Route 112 Replace Bridge C-18-12 over North River	2003	FA	\$ 469,869	Advertised 7/5/03. Complete Spring 07
603800	Colrain	Shattuckville Road Demolish Bridge C-18-009 over North River	2004	NFA	\$ 149,275	Advertised 5/15/04. Complete
603728	Colrain	Lyonsville Road Replace bridge over North River – PV change	2005	FA	\$ 1,459,972	Advertised 4/2/05. Complete
603857	Colrain	Greenfield Road Rehabilitation	2005	NFA	\$ 888,420	Advertised 6/25/05. Complete



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605083	Colrain	Route 112 Bridge preservation, C-18-005 over North River	2010	Special Bridge	\$ 3,031,985	Advertised 7/31/10. Complete
606551	Colrain	BRIDGE REPLACEMENT, C-18-028, ST 112 (JACKSONVILLE ROAD) OVER EAST BRANCH OF NORTH RIVER	2015	NHPP	\$ 9,575,773	Advertised 7/25/2015. Construction complete Winter 2016/2017.
607584	Colrain	BRIDGE REPLACEMENT, C-18-020, HEATH ROAD OVER WEST BRANCH NORTH RIVER	2017	STP-BR-Off	\$ 1,194,352	Advertised 10/5/2013. Construction complete Summer 2015.
600608	Colrain	Shattuckville Road Bridge replacement	1999*	NFA	\$ 1,117,798	Advertised with 1999 Supplemental Budget. Awarded 8/99. Complete
600739	Colrain	Colrain-Franklin Hill Road Bridge replacement	1999*	BRRF	\$ 387,486	Advertised with 1999 Supplemental Budget. Complete
600276	Conway	Main Poland Rd. over South River Bridge rehabilitation	1993	BRRF	\$ 373,103	Advertised 9/25/93
600741	Conway	Hickory Ridge Road Bridge rehabilitation	1998	NFA	\$ 341,355	Advertised 10/25/97. Complete
603703	Conway	Main Poland Road Rehabilitation of Burkeville Covered Bridge (C-20-9)	2003	BRRF	\$ 635,070	Advertised 6/28/03. Complete 8/05
602391	Conway	Reeds Bridge Road Replace Bridge C-20-13 over South River	2003	FA	\$ 537,417	Advertised 9/20/03. Complete
603241	Conway	Reeds Bridge Road Replace Bridge C-20-014 over South River	2004	FA	\$ 980,314	Advertised 1/24/04. Complete
602391	Conway	Reeds Bridge Road PV change	2004	FA	\$ 28,612	Advertised 1/17/04. Complete
604005	Conway	North Poland Road Replace Bridge C-20-003 over Poland Brook	2011	ABP	\$ 1,329,477	Advertised 8/6/11. Complete
606705	Conway	RETAINING WALL REPLACEMENT ON ROUTE 116 ALONG THE SOUTH RIVER	2014	NFA	\$ 3,417,763	Advertised 9/20/2014. Construction complete Summer 2016.
82650	Conway Shelburne	Bardswell Ferry Road Bridge rehabilitation	1994	BRRF	\$ 772,020	Construction completed 12/8/95
600729	Conway Williamsburg	Williamsburg Road Road reconstruction	2002	NFA	\$ 3,207,240	Advertised 1/19/02. Complete
	Deerfield	Route 116 Construction of storage facility	1996	NFA		Advertised 12/13/95. Construction complete
	Deerfield	Sugarloaf Street Signal Installation	1999	NFA		Advertised 9/1/98. Complete
	Deerfield	Route 5/10 Culvert installation	2001	NFA		Advertised 1/5/01. Work complete Spring 01



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603478	Deerfield	I-91 Rehab. Bridges D-06-044 & 045 (NB/SB) over Deerfield River (Stillwater Rd and Lower Rd)	2011	BR-AC	\$ 40,229,983	Advertised 9/17/11. Complete
602320	Deerfield	BRIDGE PRESERVATION, D-06-023, MCCLELLAN FARM ROAD OVER THE B&M RAILROAD	2016	STP-BR-Off	\$ 5,055,968	Advertised 9/20/2014. Construction complete Summer 2017.
607182	Deerfield	INTERSTATE MAINTENANCE & RELATED WORK ON ROUTE I-91 FROM MM 40.0 TO MM 50.4 (10.4 MILES)	2017	NHPP	\$ 11,640,416	Advertised 9/2/2017. Active construction.
	Deerfield Montague	Deerfield/Montague Franklin County Bikeway – Phase 1A	2004		\$ 1,197,690	Advertised 9/25/04. Complete
	Deerfield Sunderland	Route 116 over Connecticut River Bridge lighting replacement	1997			Construction complete
606217	Deerfield Whately	Various Locations Intersection and signal improvements	2011	HSIP	\$ 630,003	Advertised 7/30/11. Construction complete
	Erving	Route 2 Downtown streetscape	1996	Fed. – Enh.		Construction complete
	Erving	Prospect Street Resurfacing and related work	1997			Advertised 2/4/97. Complete
	Erving	Route 2 Relocation of Route 2 at the Erving Paper Mill	2003	FA	\$ 8,200,000	Advertised 8/9/03. Complete 11/06
	Erving	Route 2/ Route 63 Two bridges – over B&M and over Route 63	2004	FA	\$ 4,316,543	Advertised 9/18/04. Complete 4/09
	Erving	Bridge Street Bridge Street Millers River Bridge Rehabilitation	2004	FA	\$ 3,561,393	Advertised 9/18/04. Complete
	Erving	Route 2 Ervingside Safety Improvements	2007	FA	\$ 3,492,880	Advertised 8/11/07. Complete 11/09
607246	Erving	INTERSECTION IMPROVEMENTS AT ROUTE 2 & 2A	2016	STP HSIP	\$ 551,584	Advertised 1/21/2017. Construction complete Spring 2019.
607253	ERVING	STREETSCAPE & PEDESTRIAN IMPROVEMENTS ON ROUTE 63, FROM RIVER STREET TO 1,200 FT. NORTH OF LILLIAN WAY (1 MILE)	2018	Sec 115	\$ 928,135	Advertised 4/7/2018. Construction complete Autumn 2019.
	Erving Gill	Route 2 Installation of delineator posts and pavement markers	1997			Complete
	Erving Gill	Route 2 Repairs to Route 2 over Conn. River	2007	FA	\$ 1,396,121	Advertised 10/21/06. Complete
	Erving Gill Orange Wendell	Route 2 Repairs to Route 2 bridge over Conn. River/ and to Route 2/2A over Millers River	2004	FA	\$ 454,370	Advertised 1/31/04. Complete



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MassDOT Project ID	Town	Project Description	Funding Year	Funding Source	Project Cost	Project Status
	Erving Montague	East Mineral Road Bridge rehabilitation to bike/ped bridge	2002	CMAQ	\$ 526,933	Advertised 9/7/02. Complete Spring 05
	Erving Northfield	Route 63 Resurfacing	2001	NFA		Advertised 1/5/01. Work complete Spring 01
	Gill	Main Road Reconstruct Main Road	2005	NFA	\$ 3,134,120	Advertised 5/28/05. Complete
	Gill	Main Road Reconstruction cost adjustment	2005	FA	\$ 496,989	Advertised 9/30/05. Complete
	Gill	Route 2 rest area Improvements to rest area	1999*	NFA		Advertised with 1999 Supplemental Budget. Complete
	Gill Erving Wendell Orange	Route 2 Resurfacing and related work	2009	ARRA	\$ 3,988,870	Advertised 2nd quarter. Complete
606442	Gill Greenfield	Route 2 Replace Bridge G-04-003 = G-12-004 over Fall River	2011	BR	\$ 8,487,425	Advertised 9/17/11. Construction complete.
601585	Gill Montague	Avenue A Bridge reconstruction (G-04-010 and M-28-31) over Connecticut River (multi-year)	2008	BR	\$ 46,829,790	Advertised 9/20/08. Complete
	Greenfield	Routes 5 and 10 Resurfacing and related work	1995	NFA		Construction complete 5/24/95
	Greenfield	I-91 Clean and paint bridges	1996	IM		Advertised 9/11/96. Complete
	Greenfield	Mackin Sandbank Archeology	1996	Fed. – Enh		Project complete 1998
	Greenfield	Mill and River Sts. Partial reconstruction	1996	NFA		Advertised 9/21/96. Construction complete
	Greenfield	Routes 2 and 2A Resurfacing and related work	1996			Advertised 10/25/95. Construction complete
	Greenfield	Route 2 Safety improvements	1998			Advertised 7/98. Complete
	Greenfield	Route 2A Construction of Tourist Information Center	1998	NFA		Advertised 3/28/98. Construction complete 12/99
	Greenfield	Riverside Greenway bike bridge Installation of bike/ped bridge	2000	Fed.- ENH		Advertised 9/29/00. Construction complete 6/05.
	Greenfield	Log Plain Road Bridge replacement over Mill Brook	2001	NFA	\$ 1,075,090	Advertised 7/20/01. Complete
	Greenfield	Main Street Streetscape	2001	Statewide ENH	\$ 566,491	Advertised 5/18/01. Complete
	Greenfield	Allen St. over B&M RR Bridge reconstruction	2001	NFA	\$ 171,402	Advertised 6/22/01. Complete after readv.



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	Greenfield	Allen Street Bridge replacement over B&M railroad	2002	NFA	\$ 318,913	Advertised 11/10/01 (previously adv. 6/23/01 for \$171,402). Complete
	Greenfield	Riverside Greenway Franklin County Bikeway Phase III	2003	FA	\$ 479,580	Advertised 11/30/02. Complete 6/05
	Greenfield	Interstate 91 NB and SB Deck Replacement	2005	FA	\$ 134,000	Advertised 12/4/04. Complete
	Greenfield	I-91/Route 2 rotary Safety Improvements	2006	NFA	\$ 996,115	Advertised 9/30/06. Complete 8/08
	Greenfield	I-91 Resurfacing and related work	2007	FA	\$ 10,107,690	Advertised 9/1/07. Complete
	Greenfield	I-91/Rt. 2 rotary Readvertise additional items for safety improvements	2007	Governor's HSIP	\$ 116,675	Advertised 4/28/07. Complete
	Greenfield	Bank Row and Olive Street Construct Regional Transit Center	2009	ARRA	\$ 12,800,000	Advertised 2nd quarter. Complete
	Greenfield	various Signals and intersection improvements	2009	FA/HSIP	\$ 4,137,145	Advertised 5/9/09. Complete
606048	Greenfield	ROUNABOUT CONSTRUCTION AT THE INTERSECTION OF COLRAIN ROAD, COLLEGE STREET & COLRAIN STREET	2013	HSIP	\$ 1,547,509	Advertised 9/19/2015. Construction complete Spring 2019.
606006	Greenfield	RESURFACING & RELATED WORK ON ROUTE 2, FROM INTERSTATE 91 TO WEST OF THE GREENFIELD GILL T.L. (2.6 MILES)	2014	NFA (TWF)	\$ 4,056,013	Advertised 3/22/14. Construction complete Autumn 2015.
607223	Greenfield	SIGNAL & INTERSECTION IMPROVEMENTS AT ROUTE 2A, SHELBURNE ROAD & RIVER STREET	2014	HSIP CMAQ	\$ 1,235,930	Advertised 9/9/17. Construction complete Autumn 2019.
607222	Greenfield	INTERSECTION IMPROVEMENTS AT ROUTE 5/10 & CHEAPSIDE STREET	2015	STP CMAQ HSIP SW HSIP	\$ 562,866	Advertised 9/10/16. Construction complete Summer 2018.
608235	Greenfield	BRIDGE REPLACEMENT, G-12-006, NASH'S MILL ROAD OVER GREEN RIVER	2018	NHPP	\$ 2,590,815	Advertised 7/13/2019. Construction begins Spring 2020.
606548	Greenfield	BRIDGE REPLACEMENT, G-12-052 (OXR) & G-12-053 (OXT), I-91 (NB & SB) OVER BMRR	2019	NHPP-E	\$ 19,357,753	Advertised 8/13/16. Construction complete Autumn 2017.
601186	Greenfield	BRIDGE REHABILITATION, G-12-020=M-28-001, MONTAGUE CITY ROAD OVER CONNECTICUT RIVER (GENERAL PIERCE BR)	2020	NFA	\$ 23,114,823	Advertised 4/26/14. Construction complete Autumn 2015.



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	Greenfield	Green River Road bridge rehabilitation	1999*	NFA		Advertised with 1999 Supplemental Budget. Complete
	Greenfield Bernardston	Route I-91 Microsurfacing	2004	FA	\$ 498,371	Advertised 5/1/04. Complete
	Greenfield Gill	Route 5/10 Resurfacing and related work	2009	ARRA	\$ 3,967,320	Advertised 2nd quarter. Complete
603365	Hawley	Pudding Hollow Road Replace Bridge H-13-006 over Chickley River	2003	FA	\$ 974,702	Advertised 9/13/03. Complete
605078	Hawley	Route 8A Bridge Deck Preservation bridge H-13-07	2009	NFA	\$ 3,159,795	ABP. Advertised 11/29/08. Complete
607117	Hawley	BRIDGE REPLACEMENT, H-13-003, SAVOY ROAD OVER THE CHICKLEY RIVER	2015	STP-BR-Off	\$ 1,729,457	Advertised 12/5/2015. Construction complete Summer 2017.
607118	Heath	SUPERSTRUCTURE REPLACEMENT, H-14-009, SADOGA ROAD OVER THE BURRINGTON BROOK	2016	STP-BR-Off	\$ 625,469	Advertised 9/1/2018. Active construction.
607671	Heath	BRIDGE REPLACEMENT, H-14-001, SR 8A (JACKSONVILLE STREET) OVER MILL BROOK	2017	NHPP	\$ 976,899	Advertised 8/24/2019. Construction begins Spring 2020.
	Leverett	Route 63 Replace bridge L-09-11 Route 63/ NEC RR BR-001S(823)X	2008	FA	\$ 6,221,370	Advertised 7/5/08. Complete
600613	Monroe	Turner Hill Road over Dunbar Brook Bridge replacement	1997	NFA	\$ 457,945	Advertised 11/6/96. Complete
60850	Monroe	River and Depot Rd. Road reconstruction	1999*	STP	\$ 2,394,933	Advertised with 1999 Supplemental Budget. Complete
606911	Monroe Rowe	SUPERSTRUCTURE REPLACEMENT, M-26-002=R-10-002, DEPOT STREET OVER THE DEERFIELD RIVER	2013	STP-BR-Off	\$ 2,166,249	Advertised 12/20/2014. Construction complete Autumn 2016.
	Montague	Montague City Road Resurfacing and related work	1994	Federal		Construction complete 7/23/95
	Montague	Route 63 Bridge replacement	1996			Advertised 1/6/96. Const. completed Spring 1999
	Montague	L Street Resurfacing and related work	1997			Advertised 11/2/96. Complete
	Montague	Millers Falls Streetscape Streetscape design	2000	Fed. – ENH		Received contract FY 2000. Design complete
	Montague	South Ferry Road Bridge replacement	2001	NFA		Re-advertised 4/13/01. Complete
	Montague	South Ferry Road/The Sawmill River Bridge Replacement	2001	NFA		Advertised 2/16/01. Complete



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	Montague	Unity Park (Turners Falls) to Montague City Road Construct Canalside Trail Bikepath	2003	FA	\$ 1,459,980	Advertised 8/23/03. Complete 11/07
	Montague	Millers Falls Streetscape	2004	FA	\$ 807,919	Advertised 9/18/04. Complete
	Montague	Route 63 Resurface roadway	2005	FA	\$ 578,669	Advertised 8/13/05. Complete
	Montague	Millers Falls Streetscape – PV change	2005	FA	\$ 129,992	Advertised 12/11/04. Complete
	Montague	Millers Falls Streetscape – PV change	2005	FA	\$ 82,035	Advertised 12/18/04. Complete
	Montague	Prospect Street Replace bridge M-28-028 Prospect Street over Spring Street	2009	FA	\$ 3,350,414	Advertised 2nd quarter. Complete
604696	Montague	REHABILITATION OF HATCHERY ROAD & GREENFIELD ROAD PEDESTRIAN BRIDGE, M-28-009, FROM GREENFIELD ROAD NORTHEASTERLY TO THE INTERSECTION OF TURNERS FALLS RD (.41 MILES)	2014	STP CMAQ HPP	\$ 3,239,250	Advertised 8/3/13. Construction complete Summer 2015.
606127	Montague	RESURFACING & RELATED WORK ON GREENFIELD ROAD, FROM TURNERS FALLS ROAD TO THE FUTURE BIKE/PED BRIDGE OVER THE B&M RAILROAD (1.75 MILES)	2014	NFA (TWF)	\$ 1,227,587	Advertised 9/7/13. Construction complete Autumn 2015.
607239	Montague	CANALSIDE BIKE PATH & PEDESTRIAN CROSSING IMPROVEMENTS, MONTAGUE CITY ROAD AT SOLAR AVENUE & DEPOT STREET (850 FEET)	2015	CMAQ	\$ 1,160,947	Advertised 4/15/2017. Construction complete Summer 2019.
601657	Montague	RECONSTRUCTION ON GREENFIELD ROAD, FROM 195' SOUTH OF SHERMAN DRIVE TO HATCHERY RD (2.0 MILES)	2014 2015 2016	STP-AC	\$ 5,821,132	Advertised 10/29/2016. Construction complete Summer 2019.
	Montague Wendell	Davis Road over Lyons Brook Bridge replacement	2001	NFA	\$ 849,066	Advertised 6/29/01. Complete
	Northfield	Routes 10 and 63 Resurfacing and related work	1994	NFA		Construction complete 7/23/95
	Northfield	Main Street Scenic Byway Streetscape construction	2009	ARRA	\$ 1,685,890	Advertised 3/21/09. Complete
	Orange	Routes 2A and 78 Resurfacing and related work	1994	NFA		Construction complete 6/23/95
	Orange	West River Street Reconstruction	2001	NFA	\$ 632,719	Advertised 5/25/01. Complete



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	Orange	Highway Dept. Construction of chemical storage shed.	2001	NFA		Advertised 4/13/01. Complete
	Orange	Route 202/122 Resurface roadway	2005	FA	\$ 651,995	Advertised 8/13/05. Complete
	Orange	Route 2/202 Replace bridge O-3-21	2006	FA	\$ 6,038,200	Advertised 9/23/06. Complete
	Orange	Route 2/Lake Rohunta Replace bridge O-3-30=A-15-30	2007	FA	\$ 1,725,970	Advertised 8/25/07. Complete
	Orange	West River Street Replace bridge O-03-024 West River Street over Route 2	2009	Special Bridge Funds	\$ 4,757,140	Advertised 8/29/09. Complete
	Orange	Route 2 Safety improvements including bridge O-03-220	2010	ARRA	\$ 19,868,037	Advertised 1/23/10. Complete
607527	Orange	BRIDGE REPLACEMENT, O-03-009, HOLTSHIRE ROAD OVER MILLERS RIVER	2017	STP-BR-Off	\$ 4,661,587	Advertised 5/27/17. Construction complete Spring 2019.
	Orange	Royalston Road Bridge replacement	1999*	NFA		Advertised with 1999 Supplemental Budget. Complete
	Orange Wendell	Depot Road over Millers River Bridge replacement	1997			Advertised 2/4/97. Complete
	Shelburne	Mahican-Mohawk Trail Trail Reopening	1995	Federal – Enh.		Construction Complete 8/97
	Shelburne	Trolley Car restoration Trolley car restoration	2000	Fed. – ENH		Received funds FY 2000. Complete
600724	Shelburne	Colrain/Shelburne Road Reconstruction	2001	Fed. STP	\$ 1,250,460	Advertised 5/5/01. Complete
601666	Shelburne	Greenfield Rd./ Hindsdale Ave. Bridge Replacement	2003	FA	\$ 542,604	Advertised 11/9/02. Complete
607539	Shelburne	INTERSECTION IMPROVEMENTS @ ROUTE 2 & COLRAIN/SHELBURNE ROAD	2016	HSIP	\$ 729,982	Advertised 3/14/2020. Construction begins Summer 2020.
607548	Shelburne	BRIDGE REPLACEMENT, S-11-006, BARDWELL FERRY ROAD OVER DRAGON BROOK	2017	STP-BR-Off	\$ 1,314,197	Advertised 10/5/2013. Construction complete Summer 2015.
608953	Shelburne	RESURFACING AND RELATED WORK ON ROUTE 2	2018	STP	\$ 3,797,217	Advertised 8/25/2018. Construction complete Spring 2020.
600332	Shelburne	Route 2/Mechanic St. Road reconstruction	1999*	NFA	\$ 927,346	Advertised with 1999 Supplemental Budget. Complete



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	Shelburne	Route 112 Culvert reconstruction	1999*	NFA		Advertised with 1999 Supplemental Budget. Complete
	Shutesbury	Leverett-Cooleyville-Prescott Road Reconstruction	2006	FA	\$ 4,391,640	Advertised 9/16/06. Complete
	Sunderland	Main Street (Route 47) Streetscape improvements – tree restoration	1995	Federal-Enh.		Construction Complete 1995
	Sunderland	Routes 116/47 Intersection reconstruction	2000	Fed – CMAQ		Advertised 9/2/00. Complete
	Sunderland Montague	Route 47 Resurfacing	1994	Federal		Construction complete 8/17/95
	Warwick	Route 78/Orcutt Brook Bridge replacement	2006	NFA	\$ 1,588,121	Advertised 9/16/06. Complete
	Whately	Claveric Road Bridge replacement	1996			Advertised 1/6/96. Complete
	Whately	Conway Road Bridge replacement	1996			Advertised 1/6/96. Complete
	Whately	Conway Road Bridge replacement	1996			Advertised 1/6/96. Complete
	Whately	North Road Bridge replacement	1997			Advertised 7/5/97. Complete
	Whately	Christian Lane Road reconstruction	1998			Advertised 5/30/98. Complete
	Whately	Rte. I-91 resurfacing Interstate maintenance	2001			Advertised 3/16/01. Complete
	Whately	Westbrook Road Bridge Replacement	2001	NFA		Advertised 3/16/01. Complete
	Whately	Haydenville Road Replace bridge W-33-009 Haydenville Rd over West Brook	2009	FA	\$ 1,733,911	Advertised 12/12/09. Complete
604222	Whately	Route 116/5/10 intersection Construction of Park and Ride lot	2011	Statewide CMAQ	\$ 1,528,609	Advertised 9/10/11. Complete
	Whately Deerfield	Routes 5/10/116 Resurfacing and signalization	1995	NFA		Construction complete 7/7/95

Appendix F – Emissions Analysis

CMAQ Air Quality Analysis Worksheet for Complete Streets Project

FILL IN SHADED BOXES ONLY

TIP YEAR: 2021

MPO: Franklin

Municipality:

Greenfield

Project: GREENFIELD- RECONSTRUCTION OF WISDOM WAY, FROM 480 FEET EAST OF PETTY PLAIN RO

Step 1: Calculate New Walk and Bike Miles Traveled:

If VMT reduction per year is known then go to Step 2B, if not proceed with Step 1 :

User Input
(blank for default)

A. Facility Length (L):	0.4	Miles	
B Types of Improvements Implemented:	Both	(select Pedestrian, Bicycle, or Both from	
B. Service Area Radius for Bicycling (RB):	1.0	Miles	1.0
C. Service Area Radius for Walking (RW):	1.00	Miles	1.0
D. Service Area of Community(ies) for Bicycling (SAB): $L * 2RB = SAB$	0.86	Sq. Miles	
E. Service Area of Community(ies) for Walking (SAW): $L * 2RW = SAW$	0.86	Sq. Miles	
F. Land Area of Neighborhoods Served (AN):	5.9	Sq. Miles	
G. Population of Neighborhoods Served (PN):	8,500	Persons	
H. Population Density of Neighborhoods Served (PD):	1,441	Persons/Sq. Mile	
I. Population Served by Facility for Bicycling (PB): $PD * SAB = PB$	1,239	Persons	
J. Population Served by Facility for Walking (PW): $PD * SAW = PW$	1,239	Persons	
K. Trips per Person per Day in Service Area (T):	4.7	Trips	
L. Baseline Bicycle Mode Share in Service Area (MSB):	0.6%	Percent	
M. Baseline Walk Mode Share in Service Area (MSW):	7.2%	Percent	
N. Relative Increase in Service Area Bicycle Mode Share from Improvements (BI):	30.0%	Percent	
O. Relative Increase in Service Area Walk Mode Share from Improvements (WI):	7.5%	Percent	
P. New Bike Trips (BT): $PB * T * MSB * BI = BT$	10	1-Way Trips/Day	
Q. New Walk Trips (WT): $PW * T * MSW * WI = WT$	31	1-Way Trips/Day	
R. Average Bike Trip Length (LB):	3.0	Miles	3.0
S. Average Walk Trip Length (LW):	1.0	Miles	1.0
T. New Bike and Walk Miles of Travel (BWM):	63	Miles per Day	

Step 2: Calculate the VMT Reduction:

U. Prior Drive Mode Share of New Bike and Walk Trips (MSD):	59.0%	Percent	59%
V. VMT Reduced per Day (VMTR): $BWM * MSD = VMTR$	37	Miles per Day	
W. VMTR * Operating Days Per Year	37 * 365 =	13,544	VMTR Per Year
If the Vehicle Miles Traveled Reduction is known enter in the box to the right.			VMTR Per Year

Note: A manual entry of the VMTR will override the calculated cell.

Step 3: MOVES 2014a Emission Factors for Unrestricted PM:

Note: Use 35 MPH as a default if average speed is not known.

Speed Used: 35 MPH Eastern or Western Eastern

2016 Passenger Summer VOC Factor grams/mile	2016 Passenger Summer NOx Factor grams/mile	2016 Passenger Summer CO Factor grams/mile	2016 Passenger Summer CO2 Factor grams/mile
0.047	0.163	2.460	378.555

Step 4: Calculate emissions reductions in kilograms per year (Seasonally Adjusted):

Summer VOC	Summer NOx	Summer CO	Summer CO2
0.6	2.2	33.9	5,127.0

Step 5: Calculate cost effectiveness (first year cost per kg of emissions reduced)

Emission	Project Cost	Emission Reduction in kg per year	First year cost per kilogram
Summer VOC	\$3,572,530	0.6 =	\$5,532,345
Summer NOx	\$3,572,530	2.2 =	\$1,593,315
Summer CO	\$3,572,530	33.9 =	\$105,245
Summer CO2	\$3,572,530	5,127.0 =	\$697

CMAQ Air Quality Analysis Worksheet for Complete Streets Project

FILL IN SHADED BOXES ONLY

TIP YEAR: 2021

MPO: Franklin County TPO

Municipality: Northfield

Project: 607588 NORTHFIELD- BRIDGE REMOVAL, N-22-002, SCHELL BRIDGE OVER THE CONNECTICUT RIVER & REPLACEMENT WITH NEW PEDESTRIAN BRIDGE

Step 1: Calculate New Walk and Bike Miles Traveled:

If VMT reduction per year is known then go to Step 2B, if not proceed with Step 1 :

User Input
(blank for default)

A. Facility Length (L):	0.5	Miles	
B Types of Improvements Implemented:	Both	(select Pedestrian, Bicycle, or Both from	
B. Service Area Radius for Bicycling (RB):	0.5	Miles	
C. Service Area Radius for Walking (RW):	0.25	Miles	
D. Service Area of Community(ies) for Bicycling (SAB): $L * 2RB = SAB$	0.5	Sq. Miles	
E. Service Area of Community(ies) for Walking (SAW): $L * 2RW = SAW$	0.25	Sq. Miles	
F. Land Area of Neighborhoods Served (AN):	2.1	Sq. Miles	
G. Population of Neighborhoods Served (PN):	500	Persons	
H. Population Density of Neighborhoods Served (PD):	238	Persons/Sq. Mile	
I. Population Served by Facility for Bicycling (PB): $PD * SAB = PB$	119	Persons	
J. Population Served by Facility for Walking (PW): $PD * SAW = PW$	60	Persons	
K. Trips per Person per Day in Service Area (T):	4.7	Trips	
L. Baseline Bicycle Mode Share in Service Area (MSB):	0.6%	Percent	
M. Baseline Walk Mode Share in Service Area (MSW):	4.7%	Percent	
N. Relative Increase in Service Area Bicycle Mode Share from Improvements (BI):	30.0%	Percent	
O. Relative Increase in Service Area Walk Mode Share from Improvements (WI):	7.5%	Percent	
P. New Bike Trips (BT): $PB * T * MSB * BI = BT$	1	1-Way Trips/Day	
Q. New Walk Trips (WT): $PW * T * MSW * WI = WT$	1	1-Way Trips/Day	
R. Average Bike Trip Length (LB):	2.3	Miles	
S. Average Walk Trip Length (LW):	0.7	Miles	
T. New Bike and Walk Miles of Travel (BWM):	3	Miles per Day	

Step 2: Calculate the VMT Reduction:

U. Prior Drive Mode Share of New Bike and Walk Trips (MSD):	59.0%	Percent	59%
V. VMT Reduced per Day (VMTR): $BWM * MSD = VMTR$	2	Miles per Day	
W. VMTR * Operating Days Per Year	2 * 365 =	652	VMTR Per Year
If the Vehicle Miles Traveled Reduction is known enter in the box to the right.			VMTR Per Year

Note: A manual entry of the VMTR will override the calculated cell.

Step 3: MOVES 2014a Emission Factors for Unrestricted PM:

Note: Use 35 MPH as a default if average speed is not known.

Speed Used: 35 MPH Eastern or Western Eastern

2016 Passenger Summer VOC Factor grams/mile	2016 Passenger Summer NOx Factor grams/mile	2016 Passenger Summer CO Factor grams/mile	2016 Passenger Summer CO2 Factor grams/mile
0.047	0.163	2.460	378.555

Step 4: Calculate emissions reductions in kilograms per year (Seasonally Adjusted):

Summer VOC	Summer NOx	Summer CO	Summer CO2
0.0	0.1	1.6	246.7

Step 5: Calculate cost effectiveness (first year cost per kg of emissions reduced)

Emission	Project Cost	Emission Reduction in kg per year	First year cost per kilogram
Summer VOC	\$2,655,824	0.0 =	\$85,464,169
Summer NOx	\$2,655,824	0.1 =	\$24,613,681
Summer CO	\$2,655,824	1.6 =	\$1,625,838
Summer CO2	\$2,655,824	246.7 =	\$10,764

CMAQ Air Quality Analysis Worksheet for Complete Streets Project

FILL IN SHADED BOXES ONLY

TIP YEAR: 2023

MPO: Franklin County TPO

Municipality: Orange

Project: 603371 RECONSTRUCTION OF NORTH MAIN STREET, FROM SCHOOL STREET TO LINCOLN AVENUE (0.4 MILES) INCL RELOCATION OF FALL HILL BROOK CULVERT

Step 1: Calculate New Walk and Bike Miles Traveled:

If VMT reduction per year is known then go to Step 2B, if not proceed with Step 1 :

User Input
(blank for default)

A. Facility Length (L):	0.3	Miles	
B. Types of Improvements Implemented:	Both	(select Pedestrian, Bicycle, or Both for	
B. Service Area Radius for Bicycling (RB):	0.5	Miles	
C. Service Area Radius for Walking (RW):	0.25	Miles	
D. Service Area of Community(ies) for Bicycling (SAB): $L * 2RB = SAB$	0.25	Sq. Miles	
E. Service Area of Community(ies) for Walking (SAW): $L * 2RW = SAW$	0.125	Sq. Miles	
F. Land Area of Neighborhoods Served (AN):	4.0	Sq. Miles	
G. Population of Neighborhoods Served (PN):	2,277	Persons	
H. Population Density of Neighborhoods Served (PD):	569	Persons/Sq. Mile	
I. Population Served by Facility for Bicycling (PB): $PD * SAB = PB$	142	Persons	
J. Population Served by Facility for Walking (PW): $PD * SAW = PW$	71	Persons	
K. Trips per Person per Day in Service Area (T):	4.7	Trips	
L. Baseline Bicycle Mode Share in Service Area (MSB):	0.6%	Percent	
M. Baseline Walk Mode Share in Service Area (MSW):	4.7%	Percent	
N. Relative Increase in Service Area Bicycle Mode Share from Improvements (BI):	30.0%	Percent	
O. Relative Increase in Service Area Walk Mode Share from Improvements (WI):	7.5%	Percent	
P. New Bike Trips (BT): $PB * T * MSB * BI = BT$	1	1-Way Trips/Day	
Q. New Walk Trips (WT): $PW * T * MSW * WI = WT$	1	1-Way Trips/Day	
R. Average Bike Trip Length (LB):	2.3	Miles	
S. Average Walk Trip Length (LW):	0.7	Miles	
T. New Bike and Walk Miles of Travel (BWM):	4	Miles per Day	

Step 2: Calculate the VMT Reduction:

U. Prior Drive Mode Share of New Bike and Walk Trips (MSD):	59.0%	Percent	59%
V. VMT Reduced per Day (VMTR): $BWM * MSD = VMTR$	2	Miles per Day	
W. VMTR * Operating Days Per Year	$2 * 365 =$	779	VMTR Per Year
If the Vehicle Miles Traveled Reduction is known enter in the box to the right.			VMTR Per Year

Note: A manual entry of the VMTR will override the calculated cell.

Step 3: MOVES 2014a Emission Factors for Unrestricted PM:

Note: Use 35 MPH as a default if average speed is not known.

Speed Used: 35 MPH Eastern or Western Western

2016 Passenger Summer VOC Factor grams/mile	2016 Passenger Summer NOx Factor grams/mile	2016 Passenger Summer CO Factor grams/mile	2016 Passenger Summer CO2 Factor grams/mile
0.047	0.163	2.460	378.555

Step 4: Calculate emissions reductions in kilograms per year (Seasonally Adjusted):

Summer VOC	Summer NOx	Summer CO	Summer CO2
0.04	0.13	1.95	294.94

Step 5: Calculate cost effectiveness (first year cost per kg of emissions reduced)

Emission	Project Cost	Emission Reduction in kg per year	First year cost per kilogram
Summer VOC	\$4,944,150	0.0 =	\$133,092,654
Summer NOx	\$4,944,150	0.1 =	\$38,330,684
Summer CO	\$4,944,150	2.0 =	\$2,531,904
Summer CO2	\$4,944,150	294.9 =	\$16,763

CMAQ Bus Replacement Air Quality Analysis Worksheet

FILL IN SHADED BOXES ONLY

TIP YEAR: 2021 Bus Replacements

MPO: FCTPO

RTA: FRTA

Project 1 - Replace 3 2015 Buses with 3 2021 Buses

Emission Rates in grams/mile at assumed operating speed bin of : 30 MPH

Scenario Comparison		Summer VOC (grams/mile)	Summer NOx (grams/mile)	Winter CO (grams/mile)	Summer CO2 (grams/mile)
Model Year					
Existing Model*	=	2015	0.038	0.840	1.384
New Bus Purchase**	=	2021	0.003	0.025	0.593

* Please contact OTP for assistance on Existing Model emission factors

** MOVES 2014a Commercial Emission Factors - Please Specify the Following:

AM or PM:	AM	Restricted or Unrestricted	Unrestricted
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Change (Buy-Base)	-0.035	-0.815	-0.791	-323.665
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Calculate fleet vehicle miles per day:

Revenue miles per year	X Deadhead factor	= fleet miles per year	/ operating days per year	= fleet miles per day
376,319	1.15	432,767	260	1,664

Calculate emissions change in kilograms per summer day

Change	rate change grams/mile	/ 1000 g/kg	X fleet miles per day	X seasonal adj factor	= change/day in kg
Change in Summer VOC	-0.035	1,000	1,664	1.0188	-0.059
Change in Summer NOx	-0.815	1,000	1,664	1.0188	-1.382
Change in Winter CO	-0.791	1,000	1,664	0.9812	-1.292
Change in Summer CO2	-323.665	1,000	1,664	1.0000	-538.736

Calculate emissions change in kilograms per year

Pollutant	= change/day in kg	X op.days per year	= change per year in kg
Summer VOC	-0.059	260	-15.362
Summer NOx	-1.382	260	-359.212
Winter CO	-1.292	260	-335.794
Summer CO2	-538.736	260	-140071.266

Calculate cost effectiveness (cost per kg of emissions reduced)

Pollutant	Total Project Cost	/ Project Life in years	/ reduction per year in kg	= annual cost per kg
Summer VOC	\$300,000	12	15.362	\$1,627
Summer NOx	\$300,000	12	359.212	\$70
Winter CO	\$300,000	12	335.794	\$74
Summer CO2	\$300,000	12	140071.266	\$0

CMAQ Bus Replacement Air Quality Analysis Worksheet

FILL IN SHADED BOXES ONLY

TIP YEAR: **2022** Bus Replacements

MPO: **FCTPO**

RTA: **FRTA**

Project 1 - Replace 1 2010 Bus with 1 2022 Bus

Emission Rates in grams/mile at assumed operating speed bin of : **30 MPH**

Scenario Comparison		Summer VOC (grams/mile)	Summer NOx (grams/mile)	Winter CO (grams/mile)	Summer CO2 (grams/mile)
	Model Year				
Existing Model*	= 2010	0.115	3.750	0.659	1,209.130
New Bus Purchase**	= 2022	0.048	0.764	0.275	1,133.230

* Please contact OTP for assistance on Existing Model emission factors

** MOVES 2014a Commercial Emission Factors - Please Specify the Following:

AM or PM:	AM	Restricted or Unrestricted	Unrestricted
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Change (Buy-Base)	-0.067	-2.986	-0.384	-75.900
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Calculate fleet vehicle miles per day:

Revenue miles per year	X Deadhead factor	= fleet miles per year	/ operating days per year	= fleet miles per day
258,417	1.15	297,180	260	1,143

Calculate emissions change in kilograms per summer day

Change	rate change grams/mile	/ 1000 g/kg	X fleet miles per day	X seasonal adj factor	= change/day in kg
Change in Summer VOC	-0.067	1,000	1,143	1.0188	-0.078
Change in Summer NOx	-2.986	1,000	1,143	1.0188	-3.478
Change in Winter CO	-0.384	1,000	1,143	0.9812	-0.430
Change in Summer CO2	-75.900	1,000	1,143	1.0000	-86.754

Calculate emissions change in kilograms per year

Pollutant	= change/day in kg	X op.days per year	= change per year in kg
Summer VOC	-0.078	260	-20.360
Summer NOx	-3.478	260	-904.212
Winter CO	-0.430	260	-111.913
Summer CO2	-86.754	260	-22555.928

Calculate cost effectiveness (cost per kg of emissions reduced)

Pollutant	Total Project Cost	/ Project Life in years	/ reduction per year in kg	= annual cost per kg
Summer VOC	\$500,000	12	20.360	\$2,046
Summer NOx	\$500,000	12	904.212	\$46
Winter CO	\$500,000	12	111.913	\$372
Summer CO2	\$500,000	12	22555.928	\$2

CMAQ Bus Replacement Air Quality Analysis Worksheet

FILL IN SHADED BOXES ONLY

TIP YEAR: 2022 Bus Replacements

MPO: FCTPO

RTA: FRTA

Project 2 - Replace 1 2014 minibus with 2022 30-ft Transit Bus

Emission Rates in grams/mile at assumed operating speed bin of : 30 MPH

Scenario Comparison		Summer VOC (grams/mile)	Summer NOx (grams/mile)	Winter CO (grams/mile)	Summer CO2 (grams/mile)
Model Year					
Existing Model*	=	2014	0.038	0.840	1.384
New Bus Purchase**	=	2022	0.048	0.764	1,133.230

* Please contact OTP for assistance on Existing Model emission factors

** MOVES 2014a Commercial Emission Factors - Please Specify the Following:

AM or PM:	AM	Restricted or Unrestricted	Unrestricted
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Change (Buy-Base)	0.011	-0.076	-1.109	380.751
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Calculate fleet vehicle miles per day:

Revenue miles per year	X Deadhead factor	= fleet miles per year	/ operating days per year	= fleet miles per day
376,319	1.15	432,767	260	1,664

Calculate emissions change in kilograms per summer day

Change	rate change grams/mile	/ 1000 g/kg	X fleet miles per day	X seasonal adj factor	= change/day in kg
Change in Summer VOC	0.011	1,000	1,664	1.0188	0.018
Change in Summer NOx	-0.076	1,000	1,664	1.0188	-0.129
Change in Winter CO	-1.109	1,000	1,664	0.9812	-1.811
Change in Summer CO2	380.751	1,000	1,664	1.0000	633.755

Calculate emissions change in kilograms per year

Pollutant	= change/day in kg	X op.days per year	= change per year in kg
Summer VOC	0.018	260	4.632
Summer NOx	-0.129	260	-33.473
Winter CO	-1.811	260	-470.868
Summer CO2	633.755	260	164776.195

Calculate cost effectiveness (cost per kg of emissions reduced)

Pollutant	Total Project Cost	/ Project Life in years	/ reduction per year in kg	= annual cost per kg
Summer VOC	\$400,000	12	-4.632	(\$7,197)
Summer NOx	\$400,000	12	33.473	\$996
Winter CO	\$400,000	12	470.868	\$71
Summer CO2	\$400,000	12	-164776.195	(\$0)

CMAQ Bus Replacement Air Quality Analysis Worksheet

FILL IN SHADED BOXES ONLY

TIP YEAR: **2023** Bus Replacements

MPO: **FCTPO**

RTA: **FRTA**

Project 1 - Replace 2 2010 Buses and 1 2011 Bus with 3 2023 Buses

Emission Rates in grams/mile at assumed operating speed bin of : **30 MPH**

Scenario Comparison		Summer VOC (grams/mile)	Summer NOx (grams/mile)	Winter CO (grams/mile)	Summer CO2 (grams/mile)
Model Year					
Existing Model*	= 2010/2011	0.115	3.750	0.659	1,209.130
New Bus Purchase**	= 2023	0.048	0.764	0.275	1,133.230

* Please contact OTP for assistance on Existing Model emission factors

** MOVES 2014a Commercial Emission Factors - Please Specify the Following:

AM or PM:	AM	Restricted or Unrestricted	Unrestricted
-----------	----	-------------------------------	--------------

Change (Buy-Base)	-0.067	-2.986	-0.384	-75.900
-------------------	--------	--------	--------	---------

Calculate fleet vehicle miles per day:

Revenue miles per year	X Deadhead factor	= fleet miles per year	/ operating days per year	= fleet miles per day
640,453	1.15	736,521	260	2,833

Calculate emissions change in kilograms per summer day

Change	rate change grams/mile	/ 1000 g/kg	X fleet miles per day	X seasonal adj factor	= change/day in kg
Change in Summer VOC	-0.067	1,000	2,833	1.0188	-0.194
Change in Summer NOx	-2.986	1,000	2,833	1.0188	-8.619
Change in Winter CO	-0.384	1,000	2,833	0.9812	-1.067
Change in Summer CO2	-75.900	1,000	2,833	1.0000	-215.007

Calculate emissions change in kilograms per year

Pollutant	= change/day in kg	X op.days per year	= change per year in kg
Summer VOC	-0.194	260	-50.461
Summer NOx	-8.619	260	-2240.972
Winter CO	-1.067	260	-277.362
Summer CO2	-215.007	260	-55901.940

Calculate cost effectiveness (cost per kg of emissions reduced)

Pollutant	Total Project Cost	/ Project Life in years	/ reduction per year in kg	= annual cost per kg
Summer VOC	\$1,500,000	12	50.461	\$2,477
Summer NOx	\$1,500,000	12	2240.972	\$56
Winter CO	\$1,500,000	12	277.362	\$451
Summer CO2	\$1,500,000	12	55901.940	\$2

Appendix G – GHG Impacts of Completed Projects, FFY 2015-2019

Franklin Region Transportation Improvement Program

GHG Impacts - Completed Highway Projects

TIP Year	MassDOT Project ID	MassDOT Project Description	Funding Source		Total Programmed Funds	GHG Analysis Type	GHG CO ₂ Impact (kg/yr)	GHG Impact Description
2016	607239	MONTAGUE- CANALSIDE BIKE PATH & PEDESTRIAN CROSSING IMPROVEMENTS, MONTAGUE CITY ROAD AT SOLAR AVENUE & DEPOT STREET (850 FEET)	CMAQ	\$	599,000	Quantified	11.9	Quantified decrease in emissions from Bicycle and Pedestrian Infrastructure
2015	607222	GREENFIELD- INTERSECTION IMPROVEMENTS AT ROUTE 5/10 & CHEAPSIDE STREET	STP CMAQ HSIP SW HSIP	\$	599,331	Quantified	2076.5	Quantified Decrease in Emissions from Traffic Operational Improvement
2019	607253	ERVING- STREETScape & PEDESTRIAN IMPROVEMENTS ON ROUTE 63, FROM RIVER STREET TO 1,200 FT. NORTH OF LILLIAN WAY (1 MILE)	CMAQ Sec 115	\$	635,223	Quantified	296	Quantified Decrease in Emissions from Complete Streets Project
2020	607538	COLRAIN- INTERSECTION IMPROVEMENTS @ MAIN ROAD, JACKSONVILLE ROAD (ROUTE 112) & GREENFIELD ROAD	STBG	\$	1,917,473	Quantified	1982	Quantified Decrease in Emissions from Traffic Operational Improvement
2020	607245	SUNDERLAND- RESURFACING & RELATED WORK ON A SECTION OF NORTH MAIN STREET (ROUTE 47), FROM ROUTE 116 TO CLAYBROOK DRIVE	STBG	\$	2,655,824	Quantified	989.5	Quantified Decrease in Emissions from Complete Streets Project
2019	606507	CHARLEMONT- ROADWAY RECONSTRUCTION AND VILLAGE CENTER TRAFFIC CALMING ON ROUTE 2, FROM MM 29.5 TO MM 31.0	STBG CMAQ SW STBG	\$	7,860,350	Quantified	144	Quantified Decrease in Emissions from Complete Streets Project
2020	606011	DEERFIELD- WHATELY- RESURFACING & RELATED WORK ON ROUTES 5 & 10, FROM OLD STATE ROAD TO CONWAY ROAD (1.1 MILES)	SW HSIP	\$	2,574,885	Quantified	474	Quantified Decrease in Emissions from Complete Streets Project

Franklin Region Transportation Improvement Program

GHG Impacts - Completed Transit Projects

Program Fiscal Year	MassDOT/ FTA Project ID	MassDOT / FTA Project Description	Funding Source	Total Programmed Funds	GHG Analysis Type	GHG CO2 Impact (kg/yr)	GHG Impact Description
2016	111202	Buy Replacement 35-FT Bus	RTACAP	\$ 406,945	Quantified	322.85	Quantified Decrease in Emissions from Bus Replacement
2017	RTD0004435	Buy Replacement 30-FT Bus	RTACAP	\$ 435,000	Quantified	150.22	Quantified Decrease in Emissions from Bus Replacement
2017	RTD0004976	ACQUIRE - SUPPORT VEHICLES	RTACAP	\$ 70,000	Quantified	56.14	Quantified Decrease in Emissions from Bus Replacement
2018	RTD0005531	BUY REPLACEMENT 30-FT BUS	RTACAP	\$ 870,000	Quantified	1197.331	Quantified Decrease in Emissions from Bus Replacement
2019	RTD0005530	BUY REPLACEMENT <30 FT BUS	RTACAP	\$ 360,000	Quantified	6893.553	Quantified Decrease in Emissions from Bus Replacement

Appendix H – Comments Received

Franklin FFY 2021 - 2025 TIP Review Checklist

Completeness

ID	Review Item	Comments	Response
A1	<input type="checkbox"/> * Table of Contents is accurate and internally-linked.	Yes	
A2	<input type="checkbox"/> * Document has no broken links.	The link to MassDOT's Performance Tracker on page 7 appears to be broken. Please revise.	Done
A3	<input type="checkbox"/> * Document has no text or image placeholders.	Appendix H appears to be blank and the section on amendment and adjustment procedures is highlighted. Please address any changes to these sections within the final version.	
A4	<input type="checkbox"/> * Charts, tables, and maps are legible and properly annotated.	Yes	
A5	<input type="checkbox"/> * Document passes an accessible check.	Yes	
A6	<input type="checkbox"/> * Document is available in relevant languages per the MPO's Title VI Plan.	No. Please provide contact information for the FRCOG Title VI Coordinator within the document, and include a note in relevant languages that the document may be translated upon request.	Done.
A7	<input type="checkbox"/> * List of MPO members is current.	Yes	
A8	<input type="checkbox"/> * Signatory sheet is included and accurate.	Yes	
A9	<input type="checkbox"/> * Acronyms and partner agency lists are up to date.	Acronym and partner agency lists do not appear to be included. Please ensure these are added within the final version, perhaps the Appendix H (Glossary of Terms).	Done.
A10	<input type="checkbox"/> * Dates listed w/in TIP reflect FFY 2021–2025.	Yes	

Narrative

ID	Review Item	Comments	Response
	<input type="checkbox"/> *		
B1	TIP outlines MPO institutional organization.	On page 13, please reference the draft MOU currently undergoing revision to note the potential change in local election procedures going forward. Additionally, a new heading here would be useful.	This is now included in the Introduction beginning on page 1.
B2	<input type="checkbox"/> * TIP links back to national planning factors.	Yes	
B3	<input type="checkbox"/> * TIP references the RTP and the UPWP.	The RTP is described, but please include a brief description of the UPWP and its relationship to the TIP within the introduction, as well.	Done
B4	<input type="checkbox"/> * TIP narrative is concise and reader-friendly.	Yes	
B5	<input type="checkbox"/> * TIP discusses evaluation scoring.	Yes	
B6	<input type="checkbox"/> * TIP includes project scoring table.	Yes	
B7	<input type="checkbox"/> * TIP describes public participation process.	Yes, but Title VI and/or language access planning activities should be referenced.	Done
B8	<input type="checkbox"/> * TIP includes procedures for adjustments and amendments, including any deviations from MassDOT guidelines.	Yes, but please consider including or referencing MassDOT's amendment and adjustment procedures for the STIP so that this section is more comprehensive. If not, please note any differences between what is listed here and the MassDOT STIP procedures.	Done. MassDOT's procedures are referenced on page x and included in Appendix C.
B9	<input type="checkbox"/> * TIP describes funding sources accurately.	Yes, but please provide a description of Regional Transit Authority (RTA) Cap funding as part of the description of non-federal aid programs.	Done

Performance Measurement

ID	Review Item	Comments	Response
C1	<input type="checkbox"/> * TIP includes discussion of target-setting process.	Yes	
C2	<input type="checkbox"/> * TIP references relevant Transit Asset Management Plans.	Yes	
C3	<input type="checkbox"/> * TIP references relevant TAM Plan(s).	Yes	
C4	<input type="checkbox"/> * TIP includes current adopted performance targets.	Within Table 2 on page 8, please update the "statewide average" column to reflect that the data is from 2013 - 2018. Additionally, please revise the CY 2020 target for the rate of fatalities to .56.	Done
C5	<input type="checkbox"/> * TIP discusses relationship between performance targets and project selection.	Yes	
C6	<input type="checkbox"/> Discussion on performance measures compares regional data to statewide data where available.	Yes. This section could be strengthened through providing charts/graphs of performance measure data.	Graphs of PM data will be considered in future updates

Project Listing

ID	Review Item	Comments	Response
D1	<input type="checkbox"/> * Financial projections align with MassDOT guidance.	Yes	
D2	<input type="checkbox"/> * TIP template is formatted correctly.	Yes	
D3	<input type="checkbox"/> * Projects use MassDOT ProjectInfo TFPCs.	Yes	
D4	<input type="checkbox"/> * Out year expenditures have appropriate inflation assumptions.	Yes	
D5	<input type="checkbox"/> * Projects use MassDOT ProjectInfo description.	Yes	

D6	<input type="checkbox"/>	* Additional comment field contains all necessary info.	Yes	
D7	<input type="checkbox"/>	* MassDOT projects are (accurately) included into regional template.	Yes	
D8	<input type="checkbox"/>	* Regional target projects adhere to Readiness Days feedback.	Yes	
D9	<input type="checkbox"/>	* List includes all projects, including FLAP, FLTP, and Tribal projects.	N/A	
D10	<input type="checkbox"/>	* Transit TIP is formatted properly.	Please ensure the transit project listing matches what is listed in Grants Plus.	Yes

Impact Analysis

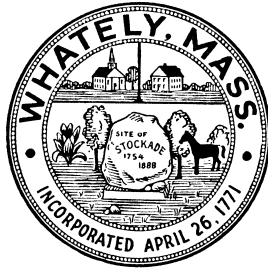
ID	Review Item		Comments	Response
E1	<input type="checkbox"/>	* TIP includes GHG certification.	Yes	
E2	<input type="checkbox"/>	* GHG analysis is available for all (and only) funded projects.	Please include the advanced construction (AC) information for project 606463 (Buckland) within the "Additional Information" field in the eSTIP application so that it appears within the GHG Impacts report.	Done
E3	<input type="checkbox"/>	* All projects are appropriately labeled as qualitative or quantitative.	Yes	
E4	<input type="checkbox"/>	* Transit projects have been analyzed for GHG.	Please revise the estimated CO2 reduction for project RTD0009103 to be in kilograms per year (the current value is showing kilograms per day).	Done
E5	<input type="checkbox"/>	* Past and current TIP projects have been analyzed for geographic equity, including a relevant table of programming by municipality.	Yes	
E6	<input type="checkbox"/>	* Past and current TIP projects have been analyzed for social equity.	Yes	
E7	<input type="checkbox"/>	* Social equity analysis considers Title VI / language access.	No, please consider including language access as part of the analysis if possible, or for future updates.	Equity analysis includes Title VI access. Future update will expand on language access.
E8	<input type="checkbox"/>	* Social equity analysis considers EJ populations, including both federal and state definitions.	Yes	
E9	<input type="checkbox"/>	* Equity analysis includes a narrative to accompany any figures.	Yes, but this could be strengthened through a description of how the Environmental Justice (EJ) thresholds were defined and confirmation that all projects in EJ communities provided benefits to those communities.	Done

* indicates required by state or federal regulation.

BRIAN M. DOMINA
TOWN ADMINISTRATOR

TOWN OFFICES

4 SANDY LANE
SOUTH DEERFIELD, MA
01373



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TOWN OF WHATELY MASSACHUSETTS

OFFICE OF THE TOWN ADMINISTRATOR

May 7, 2020

Franklin County TPO
c/o Laurie Scarborough
12 Olive Street, Suite 2
Greenfield, MA 01301

Dear Members of the Franklin County Transportation Planning Organization:

On behalf of the Town of Whately I offer the following comments on the DRAFT 2021-2025 Transportation Improvement Program.

The "Whately-Rehabilitation of Haydenville Road" project listed for construction in 2025 remains a top priority of the Town of Whately. This 1.7 mile stretch of road is a vital connector between Central Berkshire County, Franklin County and Hampshire County. The road is frequently used by motorists to access Interstate 91 and the Sunderland Bridge over the Connecticut River. The high number of vehicles, especially trucks (logging trucks, dump trucks, box trucks, etc.) accelerates the wear and tear on the road leading to increased maintenance costs for the Town. Like all communities, Whately continues to struggle with the maintenance and upkeep of its aging roads and infrastructure. Chapter 90 funds provided by the Commonwealth to communities continue to fall short of the amounts needed every year. The Town simply does not have the funds available to reconstruct the road in the manner that it needs to be done and maintenance costs on the road will continue to strain the Town's highway budget until it can be reconstructed.

We thank you for your continued support of this project. The Town remains committed to working with FRCOG and MassDOT to continue advancing the design of this project and acquiring the necessary right of way (if needed) to have this project ready for construction in 2025.

Sincerely,

Brian M. Domina
Whately Town Administrator

From: Town Administrator <townadmin@town.buckland.ma.us>

Sent: Wednesday, May 20, 2020 11:23 AM

To: Laurie Scarbrough

Subject: RE: Buckland - Status of 2 Projects

Good Morning Laurie

I am writing on behalf of the Town of Buckland regarding the decision to move the Conway Street TIP project into 2022-2023.

The Town acknowledges the project has had several significant setbacks including the transition of a Town Administrator, several project managers and, now, Covid-19. However, despite these set backs staff has worked hard to keep the project moving forward believes we can be ready for a winter 2020 / 2021 advertising date. These roads are in terrible disrepair and we receive dozens of complaints each winter about potholes and the damage to vehicles they cause. Our only saving grace this past winter was the promise we gave to motorists that it would be fixed next year. In addition to the road conditions there is the South Street Culvert. The scarring in the culvert is very bad and Nitsche engineers have expressed concern about the integrity of the culvert if the project is delayed. This project is critical for the Town of Buckland.

Our biggest challenge has been our inability to hold a Public Hearing which would allow us to move out of the 25% design phase. We had a public hearing scheduled for March 31st. It was cancelled as due to the pandemic. I have had regular communications with Shawn Holland, project manager and John Michalak for Nitsche Engineers about how DOT might proceed with a public hearing. My last understanding is that Nitsche Engineering is to put together a video presentation that would be provided to the Town for dissemination. In addition to airing it to the public in general through our PEG provider we have plans in place to set up special screenings of the video for abutters as well. A formal comment and question period would follow and those issues that have not already been captured will be done so then.

Although we are technically still in the 25% design phase because we have not had a public hearing I have been working with the engineers to address concerns as are presented. We sent our letters of intent to residents last fall and have heard back from the majority of them. They generally support the project and are anxious to have it start. We communicate through a group email and I regularly updated them as the project moves along.

Also I have been working closely with Karen Axtell and our Town Counsel to position ourselves to move quickly with the ROW process once we get through public hearing. We have an article for our June 27th Town Meeting authorizing the Select Board to acquire the easements and I have RFQ seeking appraisal services at the ready. There are a number of properties impacted but I am confident my work ahead of the public hearing will save us time on the other side and let us move through the easement process quickly.

I would strongly advocate to keep the project on the 2021-2022 schedule and would further request FRCOG's assistance to move through the public hearing process. Any help you could provide to us to facilitate the hearing would be greatly appreciated.

Thank you

Heather

Heather Butler
Town Administrator
Town of Buckland
17 State Street
Shelburne Falls, MA
(413) 625-6330 X5

Appendix I – Glossary of Terms

Glossary of Terms

ADA: Americans With Disabilities Act
CAAA: Clean Air Act Amendments of 1990
CFR: Code of Federal Regulations
CIP: Capital Improvement Program
CMAQ: Congestion Mitigation and Air Quality
CMP: Congestion Management Process
CY: Calendar Year
DOT: Department of Transportation
EJ: Environmental Justice
EOEEA: Executive Office of Energy and Environmental Affairs
EPA: Environmental Protection Agency
FA: Federal Aid
FAST Act: Fixing America's Surface Transportation Act
FCTPO: Franklin County Regional Transportation Planning Organization
FFY: Federal Fiscal Year
FHWA: Federal Highway Administration
FR: Federal Register
FRCOG: Franklin Regional Council of Governments
FRTA: Franklin Regional Transit Authority
FTA: Federal Transit Administration
GHG: Greenhouse Gas
GWSA: Global Warming Solutions Act
HPMS: Highway Performance Monitoring System
HSIP: Highway Safety Improvement Program
IM: Interstate Maintenance
ITS: Intelligent Transportation Systems
LRTP: Long-Range Transportation Plan
MAP-21: Moving Ahead for Progress in the 21st Century Act
MassDOT: Massachusetts Department of Transportation
MBTA: Massachusetts Bay Transportation Authority
MEMA: Massachusetts Emergency Management Agency
MOU: Memorandum of Understanding
MPO: Metropolitan Planning Organization
MTA: Massachusetts Turnpike Authority
NAAQS: National Ambient Air Quality Standards
NFA: Non Federal-Aid
NHFN: National Highway Freight Network
NHFP: National Highway Freight Program

NHPP: National Highway Performance Program
NHS: National Highway System
OTP: Office of Transportation Planning
PM: Performance Measures
ppm: parts per million
PPP: Public Participation Plan
RPA: Regional Planning Agency
RTA: Regional Transit Authority
RTP: Regional Transportation Plan
SIP: State Implementation Plan (for Air Quality)
STIP: State Transportation Improvement Program
STP: Surface Transportation Program
STP-BR-On: On-System Bridge Replacement and Rehabilitation Program
STP-BR-Off: Off-System Bridge Replacement and Rehabilitation
STBG: Surface Transportation Block Grant Program
TAM: Transportation Asset Management
TEC: Transportation Evaluation Criteria
TIP: Transportation Improvement Program
VMT: Vehicle Miles Traveled
VOC: Volatile Organic Compound

2021 Franklin Region Transportation Improvement Program

STIP Program	MassDOT Project ID	MassDOT Project Description	MassDOT District	Funding Source	Total Programmed Funds	Federal Funds	Non-Federal Funds	Additional Information
Section 1A / Regionally Prioritized Projects								
Roadway Reconstruction	606463	BUCKLAND- RECONSTRUCTION & MINOR WIDENING ON CONWAY STREET, SUMMER STREET, SOUTH STREET & CONWAY ROAD	1	STBG	\$2,887,813	\$2,310,250	\$577,563	Construction. Total project cost \$7,868,506. A/C over 2 years, 2021-2022. TEC score 9.1.
Roadway Reconstruction	608724	GREENFIELD- RECONSTRUCTION OF WISDOM WAY, FROM 480 FEET EAST OF PETTY PLAIN ROAD TO MILL STREET (0.43 MILES)	2	STBG	\$3,292,100	\$2,633,680	\$658,420	Construction. Total project cost \$3,292,100. TEC score 7.8.
Total Regional Federal Aid Target Funds Programmed					\$6,179,913	\$4,943,930	\$1,235,983	
Total Regional Federal Aid Target					\$6,179,913			
Target Funds Available					\$0			
Section 1B / Earmark or Discretionary Grant Funded Projects								
		No projects programmed						
Section 2A / State Prioritized Reliability Projects								
		No projects programmed						
Section 2B / State Prioritized Modernization Projects								
		No projects programmed						
Section 2C / State Prioritized Expansion Projects								
Bicycle and Pedestrian	607588	NORTHFIELD- BIKE/PED BRIDGE CONSTRUCTION TO REPLACE N-22-002, SCHELL BRIDGE OVER THE CONNECTICUT RIVER	2	CMAQ	\$22,007,915	\$17,606,332	\$4,401,583	Construction. Total project cost \$22,007,915.
Section 2C Subtotal					\$22,007,915	\$17,606,332	\$4,401,583	
Section 3 / Planning / Adjustments / Pass-throughs								
		No projects programmed						
Section 4 / Non-Federally Aided Projects								
		No projects programmed						
Total Spending Fiscal Year 2021					\$28,187,828	\$22,550,262	\$5,637,566	

2022 Franklin Region Transportation Improvement Program

STIP Program	MassDOT Project ID	MassDOT Project Description	MassDOT District	Funding Source	Total Programmed Funds	Federal Funds	Non-Federal Funds	Additional Information
Section 1A / Regionally Prioritized Projects								
Roadway Reconstruction	606463	BUCKLAND- RECONSTRUCTION & MINOR WIDENING ON CONWAY STREET, SUMMER STREET, SOUTH STREET & CONWAY ROAD	1	STBG	\$4,980,693	\$3,984,554	\$996,139	Construction. Total project cost \$7,868,506. A/C over 2 years, 2021-2022. TEC score 9.1.
Total Regional Federal Aid Target Funds Programmed					\$4,980,693	\$3,984,554	\$996,139	
Total Regional Federal Aid Target					\$6,305,751			
Target Funds Available					\$1,325,058			
Section 1B / Earmark or Discretionary Grant Funded Projects								
		No projects programmed						
Section 2A / State Prioritized Reliability Projects								
Bridge Off-system	608858	CHARLEMONT- BRIDGE REPLACEMENT, C-05-042, EAST OXBOW ROAD OVER OXBOW BROOK	1	STBG-BR-Off	\$2,196,912	\$1,757,530	\$439,382	Construction. Total project cost \$2,196,912.
Section 2A Subtotal					\$2,196,912	\$1,757,530	\$439,382	
Section 2B / State Prioritized Modernization Projects								
		No projects programmed						
Section 2C / State Prioritized Expansion Projects								
		No projects programmed						
Section 3 / Planning / Adjustments / Pass-throughs								
		No projects programmed						
Section 4 / Non-Federally Aided Projects								
		No projects programmed						
Total Spending Fiscal Year 2022					\$7,177,605	\$5,742,084	\$1,435,521	

2023 Franklin Region Transportation Improvement Program

STIP Program	MassDOT Project ID	MassDOT Project Description	MassDOT District	Funding Source	Total Programmed Funds	Federal Funds	Non-Federal Funds	Additional Information
Section 1A / Regionally Prioritized Projects								
Intersection Improvements	608414	GREENFIELD- INTERSECTION IMPROVEMENTS AT TWO LOCATIONS, ROUTE 2 AND COLRAIN ROAD & ROUTE 2 AND BIG Y ENTRANCE	2	HSIP	\$253,975	\$228,578	\$25,398	Construction. Total project cost of \$2,081,823 inflated 4% per year. Programmed with Regional STBG + HSIP funds. TEC score 9.2.
Intersection Improvements	608414	GREENFIELD- INTERSECTION IMPROVEMENTS AT TWO LOCATIONS, ROUTE 2 AND COLRAIN ROAD & ROUTE 2 AND BIG Y ENTRANCE	2	STBG	\$1,994,394	\$1,595,515	\$398,879	Construction. Total project cost of \$2,081,823 inflated 4% per year. Programmed with Regional STBG + HSIP funds. TEC score 9.2.
Total Regional Federal Aid Target Funds Programmed					\$2,248,369	\$1,824,093	\$424,276	
Total Regional Federal Aid Target					\$6,443,474			
Target Funds Available					\$4,195,105			
Section 1B / Earmark or Discretionary Grant Funded Projects								
		No projects programmed						
Section 2A / State Prioritized Reliability Projects								
Bridge Off-system	608634	DEERFIELD- BRIDGE PRESERVATION D-06-001, UPPER ROAD OVER DEERFIELD RIVER	2	STBG-BR-Off	\$7,706,070	\$6,164,856	\$1,541,214	Construction. Total project cost \$7,706,070.
Bridge Systematic Maintenance	608649	COLRAIN- BRIDGE DECK PRESERVATION, C-18-010 & C-18-012, ROUTE 112 OVER THE NORTH RIVER	1	NHPP	\$522,201	\$417,761	\$104,440	Construction. Total project cost \$522,201.
Bridge On-system Non-NHS	609082	CONWAY- BRIDGE REPLACEMENT, C-20-004, NORTH POLAND ROAD OVER POLAND BROOK	1	NHPP	\$3,996,968	\$3,197,574	\$799,394	Construction. Total project cost \$3,996,968.
Section 2A Subtotal					\$12,225,239	\$9,780,191	\$2,445,048	
Section 2B / State Prioritized Modernization Projects								
		No projects programmed						
Section 2C / State Prioritized Expansion Projects								
		No projects programmed						
Section 3 / Planning / Adjustments / Pass-throughs								
		No projects programmed						
Section 4 / Non-Federally Aided Projects								
		No projects programmed						
Total Spending Fiscal Year 2023					\$14,473,608	\$11,604,284	\$2,869,324	

2024 Franklin Region Transportation Improvement Program

STIP Program	MassDOT Project ID	MassDOT Project Description	MassDOT District	Funding Source	Total Programmed Funds	Federal Funds	Non-Federal Funds	Additional Information
Section 1A / Regionally Prioritized Projects								
Roadway Reconstruction	603371	ORANGE- RECONSTRUCTION OF NORTH MAIN STREET, FROM SCHOOL STREET TO LINCOLN AVENUE (0.4 MILES) INCL RELOCATION OF FALL HILL BROOK CULVERT	2	STBG	\$6,512,094	\$5,209,675	\$1,302,419	Construction. Total project cost of \$5,814,370 inflated 4% per year. TEC score 10.3.
Total Regional Federal Aid Target Funds Programmed					\$6,512,094	\$5,209,675	\$1,302,419	
Total Regional Federal Aid Target					\$6,527,927			
Target Funds Available					\$15,833			
Section 1B / Earmark or Discretionary Grant Funded Projects								
		No projects programmed						
Section 2A / State Prioritized Reliability Projects								
Bridge Off-system	602319	NORTHFIELD- BRIDGE REPLACEMENT, N-22-010, BIRNAM ROAD OVER MILL BROOK	2	STBG-BR-Off	\$4,559,620	\$3,647,696	\$911,924	
Bridge Off-system	608849	LEVERETT- BRIDGE REPLACEMENT, L-09-003, MILLERS ROAD OVER ROARING BROOK	2	STBG-BR-Off	\$1,124,381	\$899,505	\$224,876	
Bridge Off-system	608855	ROWE- BRIDGE REPLACEMENT, R-10-008, CYRUS STAGE ROAD OVER POTTER BROOK	1	STBG-BR-Off	\$1,960,627	\$1,568,502	\$392,125	
Bridge Off-system	609427	MONTAGUE- BRIDGE REPLACEMENT, M-28-026, SOUTH STREET OVER SAWMILL RIVER	2	STBG-BR-Off	\$2,925,664	\$2,340,531	\$585,133	
Non-Interstate Pavement	609398	ERVING- RESURFACING AND RELATED WORK ON ROUTE 2	2	NHPP	\$7,049,123	\$5,639,298	\$1,409,825	
Section 2A Subtotal					\$17,619,415	\$14,095,532	\$3,523,883	
Section 2B / State Prioritized Modernization Projects								
		No projects programmed						
Section 2C / State Prioritized Expansion Projects								
		No projects programmed						
Section 3 / Planning / Adjustments / Pass-throughs								
		No projects programmed						
Section 4 / Non-Federally Aided Projects								
		No projects programmed						
Total Spending Fiscal Year 2024					\$24,131,509	\$19,305,207	\$4,826,302	

2025 Franklin Region Transportation Improvement Program

STIP Program	MassDOT Project ID	MassDOT Project Description	MassDOT District	Funding Source	Total Programmed Funds	Federal Funds	Non-Federal Funds	Additional Information
Section 1A / Regionally Prioritized Projects								
Roadway Reconstruction	605983	WHATELY- REHABILITATION OF HAYDENVILLE ROAD, FROM CONWAY ROAD TO THE WILLIAMSBURG T.L. (1.7 MILES)	2	STBG	\$6,375,531	\$5,100,425	\$1,275,106	Construction. Total project cost of \$5,809,535 inflated 4% per year. A/C over 2 years, 2025-2026. TEC score 7.3.
Total Regional Federal Aid Target Funds Programmed					\$6,375,531	\$5,100,425	\$1,275,106	
Total Regional Federal Aid Target					\$6,375,531			
Target Funds Available					\$0			
Section 1B / Earmark or Discretionary Grant Funded Projects								
		No projects programmed						
Section 2A / State Prioritized Reliability Projects								
		No projects programmed						
Section 2B / State Prioritized Modernization Projects								
Section 2B / State Prioritized Modernization Projects								
		No projects programmed						
Section 2C / State Prioritized Expansion Projects								
		No projects programmed						
Section 3 / Planning / Adjustments / Pass-throughs								
		No projects programmed						
Section 4 / Non-Federally Aided Projects								
		No projects programmed						
Total Spending Fiscal Year 2025					\$6,375,531	\$5,100,425	\$1,275,106	

FRANKLIN REGION Transportation Improvement Program
2021 Transit Project List

FTA Program	Transit Agency	FTA Activity Line Item	Project Number	Project Description	Carryover (unobligated)	Federal Funds	State Funds	TDC	Local Funds	Total Cost
5307					Subtotal	\$0	\$0	\$0	\$0	\$0
5309					Subtotal	\$0	\$0	\$0	\$0	\$0
5310					Subtotal	\$0	\$0	\$0	\$0	\$0
5311					Subtotal	\$0	\$0	\$0	\$0	\$0
5337					Subtotal	\$0	\$0	\$0	\$0	\$0
5339					Subtotal	\$0	\$0	\$0	\$0	\$0
5320					Subtotal	\$0	\$0	\$0	\$0	\$0
Other Federal										
Other Federal	FRTA	114302	RTD0010493	CONSTRUCT - MAINTENANCE FACILITY		\$6,000,000	\$3,500,000	\$0	\$0	\$9,500,000
					Subtotal	\$6,000,000	\$3,500,000	\$0	\$0	\$9,500,000
Other Non-Federal										
Other Non-Federal	FRTA	114220	RTD0008481	On board AVL/CAD tablets - 25		\$0	\$12,500	\$0	\$0	\$12,500
Other Non-Federal	FRTA	111240	RTD0008483	BUY ASSOC CAP MAINT ITEMS		\$0	\$15,000	\$0	\$0	\$15,000
Other Non-Federal	FRTA	114102	RTD0008486	ENG/DESIGN - MAINT FACILITY		\$0	\$377,499	\$0	\$0	\$377,499
Other Non-Federal	FRTA	114406	RTD0008487	REHAB/RENOVATE - SHOP EQUIPMENT		\$0	\$10,000	\$0	\$0	\$10,000
Other Non-Federal	FRTA	113209	RTD0009100	ACQUIRE - BUS ROUTE SIGNING		\$0	\$75,000	\$0	\$0	\$75,000
Other Non-Federal	FRTA	111204	RTD0009276	BUY REPLACEMENT <30 FT BUS		\$0	\$422,501	\$0	\$0	\$422,501
Other Non-Federal	FRTA	300900	RTD0010423	OPERATING ASSISTANCE - FRTA Access		\$0	\$246,122	\$0	\$0	\$246,122
					Subtotal	\$0	\$1,158,622	\$0	\$0	\$1,158,622
					Total	\$6,000,000	\$4,658,622	\$0	\$0	\$10,658,622